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Washing and Gassing Foulbrood Combs

By J. Fleming Wakefield, Brigham Young University

I HAVE had my ups and downs and seen my fancy theories fall to the ground when put to actual test so many times that I have been reluctant to say anything on this subject until further work is done. However, I realize that events are happening rapidly and if what I am doing is to be in any way a contribution, it must be given out as soon as possible. So I take this opportunity to report the results of my research in gassing combs. It remains to be tested out in the apiary, now that the laboratory part is well developed.

Some twenty years ago there was a move made in our community to clean up foulbrood by washing the combs in clean water. It was probably Thomas Chantry who advanced the idea. I did some experimenting with it myself.

My method, partly copied from my neighbor, was this: With a sharp, hot knife every cell in a set of combs was uncapped, the combs leaned against the fence and washed out with spray from the garden hose. The combs, probably two hundred in number, now full of water, were set into a long honey tank, which was in turn filled with water and left stand twenty-four hours. The next day the spraying process was repeated. This time the scales, pollen, and honey all came rolling out beautifully. The combs were then run through the extractor and hung up in the supers. My neighbor was satisfied this would end the disease, but I feared there might still be microscopic troublemakers sticking around, so I resolved to make a complete job of it by fumigation.

I had no knowledge of bacteriology, but I knew that the town marshal came around with his generator and fumigated after all cases of diphtheria, etc. My school room had also received a treatment of formaldehyde burned in a dish with the openings of the room all closed; so I put my washed combs into a small, tight cellar, borrowed the marshal's fumigator, and proceeded to administer the dose.

If there was anything scientific about the process it was purely accidental, for I had no laboratory technique and knew nothing of checks and controls. I was therefore not aware of the desperate chance I was taking, but confidently distributed my combs as far as they would go among my healthy colonies, two combs in the middle of each brood nest.

Having kept no records, I cannot say exactly what the results were in detail, but I know that there was very little or no recurrence of the disease from this source. The apiary thus treated was located about three miles from any other bees, and was free from disease for many years until I moved to my present location in an infected district, where I soon found it necessary to do some cleaning up.

In the meantime I had studied the laboratory technique of bacteriology and have done some recent research in fumigating with formaldehyde. Space will not permit me to report in detail, but I shall copy a table or two from my record, which I hope will be enough to justify my conclusions.

At this point I wish to say that I agree with Jay Smith in his claim (American Bee Journal, August, 1929,) that it requires time, moisture, and probably temperature to effect sterilization of foulbrood combs. However, the washing process will furnish the moisture and reduce the time element to a minimum of a few hours at most, and the use of potassium permanganate (KMN04) with the formaldehyde will eliminate the worry about temperature.

My contention is that if it pays for man to make foundation to help the bees build combs, it will also pay to wash out all foreign material from the combs before proceeding to fumigate. What is the use of wasting a quart of formaldehyde to penetrate the scales, pollen, and honey contained in forty combs when all this material can easily be removed with nature's greatest cleanser—water?

When the loose material has been removed, there is nothing left to penetrate except the walls of the few remaining spores, and these are already soaked and in condition to absorb the gas. So I say, get rid of the debris and let it run down the sewer.

It is too expensive to try to work out principles of disease control in the apiary when the same thing can be accomplished in the laboratory on a smaller scale. I therefore set myself the task of finding out the strength of solution and the time of exposure necessary to produce sterilization of foulbrood combs with formaldehyde gas.

After a lengthy course of preliminary preparation, there began to appear, in my records, tables, a few of which might be of interest to those who like to study details.

Twenty-five foulbrood scales were soaked in 10 cubic centimeters of water, and the solution poured into seven small test tubes, then poured out, leaving the walls of the tubes smeared with the foul material. These tubes are then each suspended by a string in a half-gallon fruit jar into which was placed a drop of 37 per cent formaldehyde and a small crystal of potassium permanganate.

At given intervals a jar was opened and the material in the jar incubated in the usual laboratory manner with what we call a slant streak, according to tables A and B given with this article.

Results: One drop of formaldehyde in each of seven two-quart jars produced no sterilization in from one to forty-eight hours. The space was probably too great.

One drop of formaldehyde in a half-pint par did better. After one hour's exposure to the gas, only one small growth of disease germs could be produced. After four hours' exposure a very small growth was produced, but after twenty, twenty-four, and forty-eight hours' exposure the material was all sterilized.

(Although reference is made to tables, these were left out for the sake of room. The text is sufficiently clear in itself.)

The point of effective sterilization then, according to this, lies between four and twenty-four hours' exposure. In following tests the indications were that after four and one-half hours' exposure the tubes were sterile. A period of eight hours, therefore, would seem to be ample to produce the desired results.

It should be noted (1) that the foulbrood material in the small tubes was not washed off as would be aimed at in actual practice with combs, and this material would, therefore, contain thousands of spores. (2) The streaks were usually made from the drop or two of water that remained in the tubes after pouring out all that would easily run. This would require more time for penetration than if the loose material had all been washed away.

I hesitate to offer a specific formula, but from the many repeated tests made it would seem that one drop of 37 per cent formaldehyde (U. S. P.), that is, one-fifteenth cubic centimeters, with a small crystal of potassium permanganate is about right to sterilize a space of 250 cubic centimeters, or one-half pint in eight hours' time.

Calculating from these figures, three gallons of formaldehyde would sterilize a space of 1500 cubic feet, or 1000 hive bodies, using twelve pounds of potassium permanganate. This is exactly eight times the strength of the standard formula used in general agriculture fumigation.

Time required to soak up the combs depends on the condition of the honey. The scales and the pollen will be free in four hours, but granulated honey will require more time. I have not determined whether the gas in a large chamber will be distributed as uniformally as in the small fruit jars.

Now listen: I hope that no one will be like the dog which jumped at the mule's "conclusion," and distribute his "washed" combs among too many clean colonies until he has tested it out on a small scale. However, I hope that everybody will try it on a few combs. Jay Smith's paraffined hive bodies would be enough to make the test. I have not carried it far enough into the apiary to be ready to state anything definite.

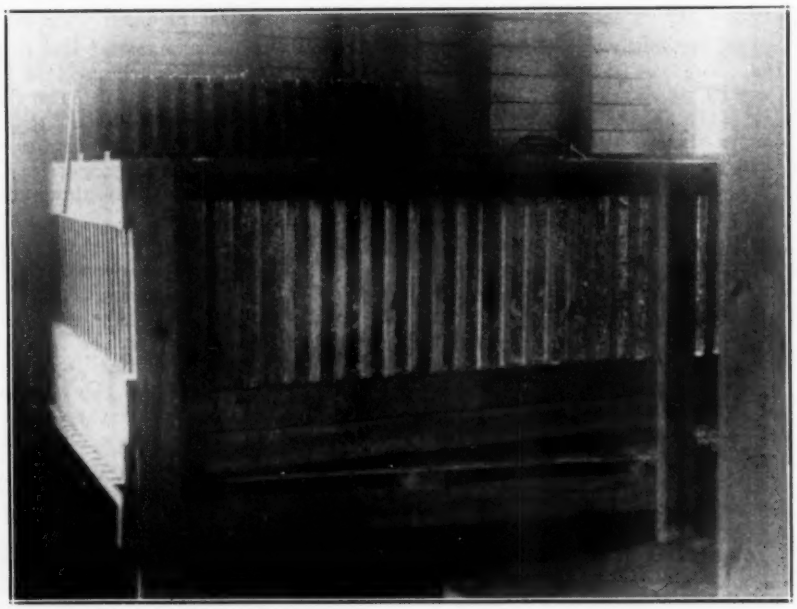
Again, don't be stingy. If it would pay to sterilize combs with one quart to four hive bodies, one could afford to multiply the formulae here proposed by four or five and thereby play safe. Don't use so much, however, that it accumulates on the combs, for then it is a nuisance. Make some allowance for gas absorption into the wood if hive bodies are used.

(It would probably also pay to wash the combs thoroughly after proceeding with the gas before giving them back to the bees. The wash water can be extracted, the combs aired for a short time, and then there seems to be less chance of injury to the bees from the treatment as experienced by Leroy Baxter, who gave his results in these pages.—Ed.)

If anyone is in a hurry to get results and does not went to wait to try this method, I do not hesitate to give another that will give quick results. That is, wash the combs just as though you were going to fumigate them; then, with a spray pump, spray the cells with full strength formaldehyde. Let them stand in a closed super for a few hours, forty-eight at the most, and the job is done. Just as soon as the gas has evaporated enough, the combs are ready to use. They can be made ready for use earlier by washing them again, as suggested by Dr. Sturdevant.

Full, or nearly full, strength formaldehyde should be used in this case, since the moisture in the combs will make up the dilution usually made. I have not determined the exact amount of moisture taken up by a set of combs in the treatment. This can be easily estimated by taking the difference in the weight of a set of combs when dry and the weigh of the same set when wet.

Draining Cappings



T. C. Asher, of Brookneal, Virginia, has a unique arrangement for handling his cappings. He likes to dispose of the cappings from a liberal portion of his honey crop at one job. With twenty-six yards and a central extracting plant, he has a lot of them to handle.

At one end of his extracting house he has built a bin four feet wide and ten feet long for this purpose. The sides and bottom of the bin are lined with woven wire of one-half-inch mesh to permit the honey to drain rapidly away from the cappings. Underneath the bin is placed corrugated galvanized iron roofing to catch the honey and carry it to a tank below the bin. The iron rests on a wood support and is set at a slant to permit the honey to run away readily. Each morning the cappings are stirred and pushed toward one end to permit the new portion to fall directly upon the wire. The bin is large enough to hold all the cappings from 35,000 pounds of honey, and they are left to stand long enough to dry out thoroughly, after which they are melted up, making first quality beeswax.

An Improved Method of Queen-Rearing

Laying workers will not accept newly grafted queen-cells. A queenless colony varies; if it has been queenless for a long time, it is very poor at cell starting; if it has not been queenless so long, it is better. All those facts suggest that there is a best period for starting cells in a colony that is not queenright.

Take a queen away from a strong colony and watch the behavior of the bees of that colony. You will find, almost as soon as the queen leaves the hive, that they become restless and that the signs of restlessness continue for some time. The bees on the outside of the hive appear to be looking for something. This period of searching for the queen is likely to continue until they give up hope of their queen and have queen-cells in her place.

After they have started queen-cells, they will not accept many grafted cells, and sometimes none at all. This suggests that the right moment to give cells is as soon as they miss their queen and before they start cells from their own brood.

Following this reasoning, I tried out the idea and find it most successful. It is as near to a natural method as one can get. The bees are made to desire queen-cells, and the cells are given to them when they feel the desire; then the queen is returned to them as soon as the cells are accepted, in fifteen to thirty minutes, and the cells are then reared by bees that have a queen, but do not feel rushed and compelled to rear queens—any sort of queens as long as they are queens.

By this method they will rear from five to twenty fine, large cells, according to honey and pollen flow.

The plan can be briefly summarized:

1. Find the queen and cage her.
2. Set one or two frames of unsealed brood into the super, two- or three-day larvæ preferred, above an excluder, of course.
3. Close the colony while you go to the breeding queen and graft larvæ into cell cups.
4. Place cell cups (I use natural ones) around the brood in natural queen-cell position, if possible. If not possible (if comb is a good one), put cells around brood and next to the honey that is above the brood.
5. Close colony and leave it for fifteen to thirty minutes.
6. Run queen in.

The queen can be run in at once, but I generally keep her out for fifteen minutes, or until I find the next queen, if less than fifteen minutes.

If conditions are very favorable, it is not necessary to take the queen out, but since one has to find her in order to be sure she is not on the combs that are put up into the super, it is not any trouble to cage her. I did not say use a strong colony; that is almost unnecessary. A colony should occupy three Langstroth (ten-frame) bodies before being used to rear queens.

John H. Rosser, Australia.

The Ti-Ti

In the swamps of the southeastern states from Georgia to eastern Louisiana there is a common shrub which puts forth abundant small white flowers in late winter or early spring. At this season the blossoms are most welcome to the bees, and their eager humming may be heard on every hand. This is the Black Ti-ti, **Cliftonia monophylla,** also called Buckwheat Tree and Ironwood.

The honeyflow from this source comes in Feburary and March. Although the nectar yield is apparently plentiful, few colonies are strong enough to store much surplus at this season. It is particularly valuable for a breeding flow, although some surplus is secured. The honey is rather thin, dark in color, and granulates quickly. Because of its inferior quality, the honey is used mostly for baking or other purposes not requiring special quality. When blended in small proportions with tupelo or gallberry, the mixture is not displeasing, but if there is much of the ti-ti honey in the blend the result is to reduce the price of the entire output, since few markets favor honey of this quality.

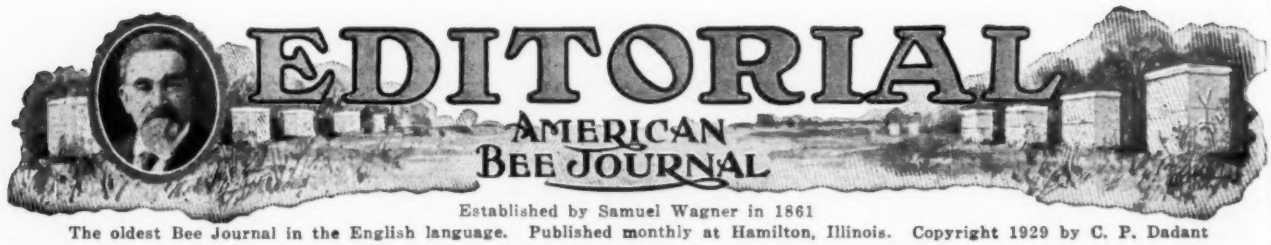
In the tupelo regions ti-ti is especially valuable in preparing the bees for the heavy flows from tupelo, which come a few weeks later. In the vicinity of ti-ti swamps the bees are likely to build up a sufficient working force to gather a good crop from the later flow. F. C. P.

Burning Up Bees Under Misconception

The "Wisconsin Beekeeping," in its July number, mentions correspondence from a Chinaman who was a student at the university. He wrote:

The Y. T. Woo Bee Company having three boats upon which they carry seven hundred colonies which they move about in different regions along the rivers, the farmers believe that the bees cause serious damage to the crops. They claim that poor production of rice and mustard was had because the bees ate up the flowers to make honey. So, on the night of April 9, nearly two thousand farmers swarmed on their boats. They carried the hives and put them in a high pile. Then they spread several cans of coal oil on the pile and burned them.

Some of our own farmers believed similar foolishness. But they are learning better.



Established by Samuel Wagner in 1861

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The Side-liner

The American home is fast losing its former character of a workshop. No longer do the mass of people take delight in keeping hens and making a vegetable garden. Instead their leisure hours are occupied with radio or automobile.

From every direction come reports that side-line farmers are losing interest and dropping out. It is said that the packet sales of vegetable seeds for home gardens have greatly declined in recent years. This, of course, is to the advantage of the commercial gardener, for folks still must be fed and those who do not raise their own vegetables must buy them.

The side-line beekeeper has served a peculiar purpose to the industry. Through his enthusiasm he has kept bees and honey before the public and created a demand for more honey than he supplied. If he drops out, some organized advertising agency must do the work which he has done to keep the public "honey conscious."

Honey production is rapidly falling into the hands of specialists, who manage large apiaries and sell their product in car lots. Such men have little time to keep the public interested. Honey is not a staple and, unless frequently reminded, the housewife will forget. So many things clamor for her attention that few items remain indispensable to her table.

Beekeeping offers a very attractive out-of-door occupation to those who seek something besides amusement. A busy executive recently stated that he found more complete relaxation with his bees than with anything else which he had ever tried. Unlike most animals, they do not require attention every day, and there is so much of interest in connection with their care that they will richly repay the one who loves them.

Royal Jelly for Human Beings

A very fanciful account is given in the New Britain Herald of an attempt being made by scientists in Canada to ascertain the exact nature of royal jelly in order to feed a similar food to human beings. The theory is that the queenbee attains a much larger size and a longer life than the worker owing to her being fed upon that royal jelly during her entire development. It is held that if such food could be fed to growing infants they would live much longer and become much larger. The hope is held of men ten feet tall and with a life scope of 250 years. Fine fancy!

Parthenogenesis

You will find an article on page 496 referring to the question named above and speculations upon the possibility of the queen knowing the sex of the eggs that she lays, when she lays them.

Parthenogenesis used to be called a theory. It was discovered by Dzierzon and it describes the ability of the queen to lay eggs that produce worker bees in worker-cells and eggs which produce drones in drone-cells. It also explains how it is that laying workers or unmated queens never produce eggs but the eggs of drones.

This problem, which puzzled Huber so greatly, is positively explained by the Dzierzon discovery. The queen has, near the mouth of the oviduct, a small sack called the spermatheca, which at the time of impregnation receives the sperm or fecundating fluid furnished by the drone. When an egg is laid, if there is a slight pressure of the spermatheca, some of the fluid is pressed out and enters the egg through a small opening called micropyle. The egg then becomes a female egg and may produce either a queen or a worker. But if there is no pressure upon the spermatheca, the egg remains unfertilized and produces a drone.

This parthenogenesis is no longer regarded as a theory. It has been sufficiently proven to be considered as a scientific fact. It is to be regretted that this discovery was made by Dzierzon a few years after Huber's death, for Huber almost pointed to it when he wrote in his book (see our translation of Huber, page 221):

"Who will be able to explain the singular peculiarity that the workers of insects in a republic lay none but the eggs of males, when they are fertile? Who can account for such a fact? They have ovaries similar to those of the queens or the mothers that gave them birth, yet they possess only a semi-fertility; it is no easier to conceive why the queens that have been impregnated later than three weeks after their birth produce only male eggs. Doubtless there is a connection between these two facts."

The above facts are very positive. But there remains to find out whether the queen, when she is mated and laying, knows whether she is laying male or female eggs. This is what our contributors are discussing. It is not yet positively decided.

The queen rarely makes a mistake. Unless she is a very young queen or a worn-out queen, she will always lay worker eggs in worker-cells and drone eggs in drone-cells. If a hive full of drone comb is given to a swarm, the bees will desert it, or, in rare cases, narrow the mouth of some of those drone-cells to the size of worker-cells, and the queen will then lay worker eggs in them. But a young, prolific queen, if she finds herself cramped for room to lay, may lay worker eggs in worker-cells that are just being built and are still rudimentary. She may also lay eggs in queen-cells, which are even larger than the drone-cells. Does she know what sex she is producing? If so, she is wiser than our own wives, who do not know beforehand the sex of their progeny.

That is the problem. Will we ever be able to solve it?

Dwindling and Thin Honey

In the "Victorian Bee Journal" for August we find some comments upon thin honey as a cause of dwindling among bees. There is not any doubt in our mind that thin honey is bad winter food, whether it is acceptable at other seasons or not. We are quite sure that thin honey should be extracted if the bees cannot evaporate it fully before cold weather.

It is not yet too late, in our climate. Examine your colonies, and if you find unsealed honey that is not ripe, take it out and replace it with sugar syrup. Sugar syrup is the best food for winter, although it is not suitable for spring breeding. But unsealed honey gathers moisture to such an extent that it sometimes runs out of the cells. This is not a fancy, for I have seen it. When this happens in cold weather, some of the bees may be smeared with it. You may then imagine what a mess it is.

You Can Help the Institute in An Important Series of Meetings

On page 516, where the news of the American Honey Institute is continued from page 489, you will notice a request for donations of honey to help the Institute in a series of meetings, held in the interests of food specialists, which are highly important. It is these very specialists on whom we are depending to carry the gospel of honey uses to the individual housewife all over the nation.

Send donations of honey, for distribution and sampling at these meetings, directly to the American Honey Institute, Indianapolis, Indiana. Send a card to the Institute stating that you have made such shipment, so that it may be expected. The Institute is doing a wonderful work in forwarding the interests of beekeepers. This is your chance to help.

What's the Hurry?

When one accepts an invitation from some kindly disposed neighbor to take a drive, he usually has little opportunity to see anything except the road ahead. Instead of taking leisurely speed which will permit one to enjoy the fields, the crops and wayside farms, the average driver takes delight in tearing along the highway at fifty to sixty or more miles per hour. Everybody appears to be rushing as though to a fire. As a result there are many unnecessary accidents and little enjoyment of a journey. Just what the rush is all about nobody seems to know.

Even beekeeping, which was once regarded as the most quiet of occupations, is speeding up. Instead of spending much time with a few bees, we now must have so many as to keep us hustling from dawn to dark, with little time to enjoy the peculiar attractions of our craft.

A Booklet for Bakers

In the news of the American Honey Institute this month mention is made of a booklet which is being prepared for bakers to give information of a practical nature for their use in adding honey to their regular recipes. This booklet will be well illustrated and is offered at a very nominal price of about 5 cents each, less in quantities. Send 5 cents in stamps to the American Honey Institute, Indianapolis, Indiana, for a sample copy.

Buying By Mail

When a man buys at home he can see what he is getting and decide for himself whether it is worth the money. When he buys by mail he trusts to the integrity of the advertiser. The American Bee Journal believes that every advertiser in this magazine will deal fairly with customers.

We go to a great deal of trouble to investigate advertisers, and do not intentionally admit any who will not make good. Any reader who has not received fair treatment from any of our advertisers is requested to write us fully, giving all the facts.

When buying bees and queens from a distance, the buyer should remember the problems which the shipper has to meet. Orders should be placed some time in advance, if possible. It takes several weeks to rear a young queen, and unless the shipper has some idea as to the number of orders to be filled, he will either rear more than he can sell or be unable to fill all his orders promptly. Bad weather often interferes with queen-rearing operations and makes it difficult to make shipments of package bees promptly. If the buyer will cooperate by giving advance orders and a little leeway in which they are to be filled, it will simplify things for the shipper.

A few shippers are negligent in acknowledging orders and keeping up their correspondence. Thus the buyer does not know what to expect and in case of delay is often seriously disappointed. Most of the disappointments could be avoided by a little more consideration on both sides.

Farmers Quit Their Jobs

Recent estimates place the rural population of the country at something like two millions less than in 1927. The stream of farmers moving to town seems undiminished. Poor markets for farm products, low prices and general discouragement have determined millions to make a change at any cost. Empty houses and weed-grown lots are common sights in many rural communities.

Some of those leaving agriculture to enter industrial life will profit by the change. Many will regret the decision. Instead of life in the open air, they will find themselves doing routine work day after day in stuffy factories, with little variety in the daily round.

Every family that leaves the farm makes one more to be fed and removes one from the ranks of the producers. It would seem that this trend cannot continue indefinitely without overcrowding industry and producing a shortage of food producers.

While so many are leaving the farms there is already beginning a movement in the other direction. Many workers, dissatisfied with living conditions in factory districts, are looking for opportunity to get into the country, where there is sunshine and fresh air and a chance to work in the soil.

Now would seem to be a good time for the food producer to hold on. There are indications of better times ahead. We expect better prices and better markets. Beekeepers are reporting easier sales and better demand. Now may be a good time to look around for bargains in outfits offered for sale by those who are seeking greener pastures elsewhere.

Action and Reaction

A certain prominent statistician talks much about the law of action and reaction. He believes that the way to get on is to get in when everybody else is getting out and to get out when everybody else wants to get in.

Just now there is a depression in every branch of agricultural activity. Unless all signs fail, now is the time to get into rather than getting out of food production. Apiaries are offered for sale at bargain prices, with no takers, in many localities. In regions where good crops are dependable we believe there is little risk in sticking to the bees. Don't plunge, but hold onto what you have and take on as many more as you can handle safely. In some cases bees can be bought at prices which can be paid with one crop of honey.

Some of these days the food producer will be in the saddle again and the fellow who is equipped to carry on will reap a harvest.

Apis Club Greetings

We have had the pleasure of receiving from the Apis Club, meeting at Berlin, a postal card of congratulations, signed by Dr. Armbruster, Miss Annie D. Betts, Ph. J. Baldensperger and his daughter Nora, C. Toumanoff, G. A. Rosel and several others. Our thanks go to these people for their thoughtfulness and courtesy. We wish we could have been with them.

Put Your Home Economics Teacher on the Mailing List for "Honey Helpings"

The little mimeographed circular, "HONEY HELPINGS," distributed each month by the American Honey Institute, goes to teachers, home economics workers and food specialists all over the United States. The Institute will be glad to mail copies to your home economics teacher, restaurant manager, or anyone interested in children's work or in a capacity where the preparation of food is of importance, if the names are sent directly to the Institute.

We have seen several issues of "HONEY HELPINGS." It is a mine of information and will do much to put the honey message over to a large group of most important people.

Bee Men and a Backwoods Cabin

By Carro Trace

WHY are the annual meetings of the North Dakota Beekeepers' Association so popular and so well attended?

A. G. Arvold, head of the public discussions and social service department of the North Dakota Agricultural College, is one answer. The Lincoln log cabin is another.

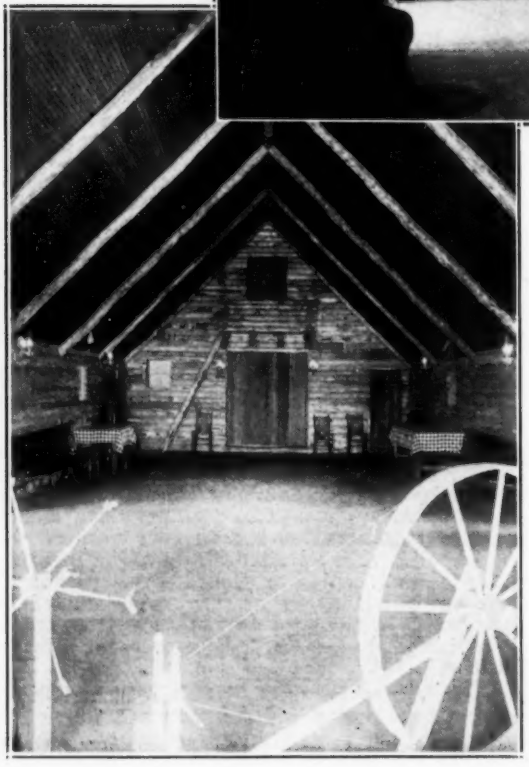
Eighty-five North Dakota beekeepers attended the last meeting, which was held at the agricultural college during Farmers' Week. Practical talks by men with years of experience were a main feature, but what probably stands out most clearly in the minds of these bee men is the manner in which they were so royally entertained by Mr. Arvold during the session.

In the Lincoln log cabin built in the attic of the main building of the college Mr. Arvold has established a place in which all sorts of people have been entertained, from the most famous men and women to boys and girls who are members of 4-H clubs.

For twenty years the attic remained at the college unused. Then Mr. Arvold conceived the idea of creating it into a typical community center. With monye left over from several plays, logs were shipped to Fargo from Itasca Park, and college students, under the direction of Mr. Arvold, placed them.

Crude and simple furniture is featured in this cabin, where bee men are entertained. See the spinning wheel in the foreground of the picture below.

Above, a corner of banquet room of the Lincoln log cabin at the North Dakota Agricultural College.



From that small beginning the Lincoln log cabin has become nationally known, and yet the keynote of the whole thing is simplicity itself. Red and white tablecloths resembling the homespun linens of a century ago are on the numerous tables, and genuine kerosene lantrens hang from the ceiling, but in them Arvold has ingeniously hidden electric light bulbs where the old wicks one time gave off light. On the fireplace mantle are a picture of Lincoln and a well-worn copy of the Bible. Across the front is an inscription in hand-wrought iron that reads, "Let us have faith that right makes might." Standing on a shelf is the cookie jar, which usually contains a delicious treat for those who are willing to seek it. In one corner of the room is an old-fashioned organ, and in another a real spinning-wheel. Corn and peppers hang from the ceiling as in the cabin homes in the mountains. For the bee men there were even hams and slabs of bacon hung from the rafters. During the banquets an old-time orchestra plays old-time tunes in the balcony built above one of the doors.

There is nothing elaborate about the cabin. It is just an old attic made cosy and large enough to feed two hundred people, representing at

the college what any attic of any community hall can be converted into.

In such surroundings the North Dakota beekeepers receive inspiration and recreation during their meetings each year. Every session is made just a little bit more fascinating to the bee men when at the end they hear someone call out, "Coffee and doughnuts in the cabin."

Not All Rheumatism Cured By Stings

By Emmett Baxter

Referring to the article in your March number, page 125, by A. D. B., in which he holds that "bee stings" are a cure for rheumatism, or rather for certain forms of this so-called disease, the gentleman is respectfully informed that it is ridiculous to claim that "bee stings" are a radical cure for so-called rheumatism in any form, in view of the fact that such conditions are of alimentary origin—in short, they start with auto-intoxication, continue with auto-intoxication, and end with auto-intoxication.

In fact, rheumatism, neuritis, or whatever you care to call it, is not a disease within itself, but is simply a by-product of poor elimination and is generally associated, in fact generally preceded by vitamin and mineral salt starvation, pyorrhea, etc., with gluttony thrown in for good measure.

An anti-toxin diet is indicated, and of all the foods that make up such a dietary, remember, **milk and honey** take first place. In fact, for changing the flora of the gastro-intestinal tract, these two foods will work where all other dietary measures fail, when used in connection with light, air, water, etc., coming under the respective headings of heliotherapy, aerotherapy, hydrotherapy, etc.

For authority for the above claims just read the works of such eminent drugless specialists as John Harvey Kellogg, J. H. Tilden, Henry Lindlahr, Ellis Barker, Sir William Arbuthnot Lane, and Sir Arthur Keith. I am quite sure he will understand that the so-called rheumatic diseases have their origin in the gastro-intestinal tract and that the remedy is good elimination, which can only be brought about by following natural laws. Philadelphia.

(A. D. B. is a lady and not a physician, but we are sure she is open to conviction, as we are ourselves. But physicians are not always agreed and many things which were held as beyond doubt a hundred years ago are now contradicted by many physicians.—Editor.)

Sweet Clover Makes Top-Notch Location Out of Poor One

By J. E. Richmond

I am situated on the high plains country in northwest Nebraska. There is no natural water supply here for bees closer than twelve miles on the north, forty miles south, ninety west, one hundred and ten east. So you see I am in a dry country. Our average precipitation is 16½ inches, our altitude about 4,000 feet. The first bees that were tried out here starved to death in the summer time, or so I am told on good authority, so you see the wild flora is of little benefit to bees.

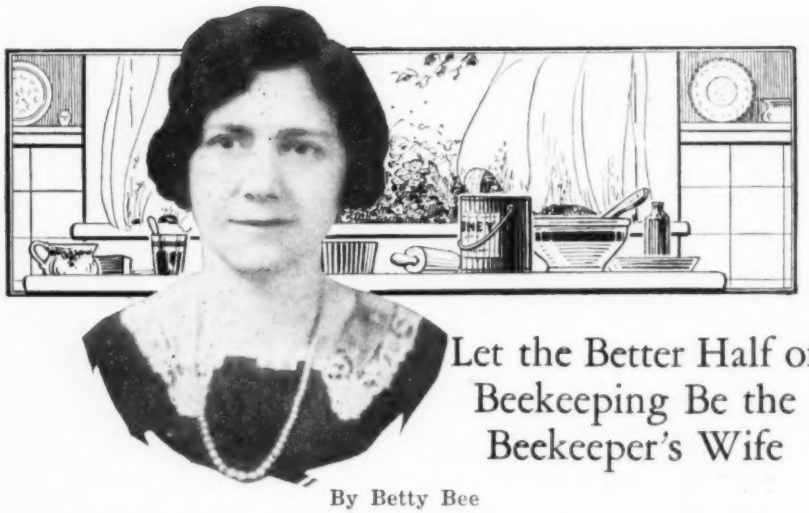
I have written the above to give an idea of what I am up against out here. I bought two colonies of bees four years ago to try them out and see what they would do, and I am not sorry that I did; not that I can say they have been such a financial success, but I have done the impossible, if I am to believe the advice I got before I got the bees.

Alfalfa is a joke as a honey plant here in most years. I have watched my bees fly across fields of alfalfa near the house that were in full bloom and go over two miles to work sweet clover, and do it for two weeks at a stretch. I now control the sweet clover fields where my bees gather nectar, or I would have to quit beekeeping; but, as it is, I believe, from past experience, that, with proper care, the bees will average from one hundred to one hundred and fifty pounds surplus to the colony, for I have had some that went around three hundred pounds each.

I water the bees with a trough filled with gravel and large jugs, on the gravity plan. I put a teaspoonful of table salt to the gallon of water and there is no trouble with the bees around the pump or tanks, and they don't go to the hog or chicken troughs to get water; the salt keeps them at their own watering place.

I started with standard ten-frame hives, but found them too small for the large amount of bees needed for the honeyflow. I would get them stacked so high that I could not work them before the first honey was ready to extract, and it is no joke for a man of my age to try to handle a large super of honey weighing sixty-five to seventy-five pounds when the stack is higher than his head, and that is what I have had several times last year. This coming summer I will have the large hives and a device on wheels to do the lifting for me. Nebraska.

Group of beekeepers attending winter meetings of the North Dakota State Beekeepers' Association and Beekeeping Short Course at State College. They banquet each year in the Lincoln log cabin.



Let the Better Half of Beekeeping Be the Beekeeper's Wife

By Betty Bee

NOW that John's bees are all safely (or unsafely) tucked in and will stay that way for a few months, and our John has not as yet thought of any odd jobs he wants us to do for them, I am wondering if you and I should not get together and take an inventory, as it were, of just where we stand and what we can do to help boost this beekeeping proposition.

Our husbands are bound to keep bees. Some of them are in the industry as a living; others merely keep them for the fun they get out of it, while still others would gladly go into it deeper and make more of a study of it if they could begin to see a safe margin of profit dropped into the family pocketbook. "Once a beekeeper, always a beekeeper," is true, and you and I are glad of it. We are proud of being married to men of the high, clean, honorable type that seem invariably drawn to the care of bees, and since they **must** keep bees, isn't there some way that you and I can help boost this industry and get it on a really paying basis? Let us look into the matter.

According to Dr. Phillips, I think it is (and who of us women would dare contradict so learned a gentleman?), there are some 500,000 beekeepers in this country, and according to Jay Smith every beekeeper **must** have a wife to supply cold cream jars for royal jelly, etc. Counting a good many of us women folks who keep bees in our own names, and the majority of us who are merely "in-laws" to it, there are surely some 400,000 of us women who are more or less involved in this industry; and I am wondering if all of us, this vast multitude of 400,000, are each doing our own part in boosting our husbands' wares. We do not hear of merchants' wives who buy from some other merchant a style of goods similar to what their husbands have to sell, nor do we hear of their advertising the other fellow's wares, but aren't we constantly doing this very thing? Do you and I, each of us, advertise our husbands' wares, Honey, as we should?

Now I do not necessarily mean that flamboyant advertising that makes itself disagreeable and oftentimes ridiculous; but I mean are you and I so truly "sold" on the real worth of our husbands' production that we are proving to the world "Honey is good enough for us"? When you serve that "bread line" that always stops with your Tommy or Susie at the back porch after school, are you handing out advertisement in the shape of honey ginger cookies or honey jelly tarts that convince them most adequately as to the worth and merits of your husband's production? Can't you see in this very "bread line" of hungry urchins one of the finest ways of proving to your neighbors that honey is worth while? Don't you know that every tag of them will trot home, enthusiastic over the handout, probably declaring to his mother your vast superiority over her as a cook? "And she does it all with honey!" The first thing you know your neighbors will be buying more honey, probably as a proof to the said "bread line" that they too can cook with it.

Or, when your Ladies' Aid meets with you, are you always careful that your cake or sandwiches are with some form of honey? Someone is sure to bob up and ask, "Just how did you make these?" Then, my dear, comes your little chance to advertise honey. Or, when the children next door are coughing their poor aching heads off, a little plate of home-made honey cough drops, innocent in themselves, but pure and good, will help soothe the little throats and smooth the way for more honey in that home.

Do you realize that if you and I, 400,000 of us, a mighty host in ourselves, would each increase the consumption of honey in our own families it would go a long way to take care of that honey that is now waiting to be sold, that those discouraging words from our market report, "Honey moving slow," would change to "Fair" or "Good"? If by our example and the very goodness of our "wares" we would convince our friends of the really worth-while cooking that can be done with honey, its sale would increase. Yes, 400,000 women can do a great deal.

But I hear you say, "Sugar is so much cheaper, so much easier to cook with." Every ounce of honey you can get your family to take is **pure nutrition.** In its elimination there is no waste. In sugar, not only is there waste, but you are laying up for your family the foundation for illness and misery in the future. For every pound of sugar your family uses, you should set aside at least one-half of its cost for future doctor and hospital bills. Honey is a perfect food. In its use in cooking, while it does take cup for cup of sugar, fewer eggs are required and your food is so much more appetizing and healthful.

As to its being easier, women, do you realize how much of our cooking is merely habit? Had we **learned** to cook with honey, we would think nothing of it. We hate to change, honest we do. We get accustomed to one recipe. We can just "dish it up," as my grandmother used to say. Do you remember the first loaf of bread you baked? No mother could have watched her weak baby any more carefully than you did as you radiated from your crock of bread sponge back to your cook book. I even added the telephone to my rounds and called up my neighbor time and time again, as I told her each "symptom" and described each change. But now—well, we just "dish it up."

All of us want our Johns and little Johns and little Marys to be healthy, wealthy and wise. My dears, there is no better way than now—right now—to gently, persuasively and tactfully increase the amount of honey in our own homes and in those of our friends. Abundant, radiant health must come with the elimination of commercial sugars, and the exclusive use of honey for sweetening in our homes. The increased consumption of honey, to the beekeeper, of necessity will bring added wealth (not to mention what you will save from doctors' visits); and as to wisdom—that goes without saying.

If I were asked the simplest place to begin honey cooking, I would say "dessert," for in dessert that little taste of honey is simply the finishing touch of delicious elegance wanted at the close of a meal. In case your guest is one of those pernickity in-

dividuals who intimates that she does not like honey or it does not agree with her, don't tell her you are using honey in your deserts! Just serve it anyway, as decoratively and elegantly as you can, and after she has eaten it with such evident enjoyment (and she will) so she has "already done committed herself," as our hired man used to say, you can go on with your good work and use honey more and more. These people who think they don't like honey usually become our biggest boosters, and in approaching them I find it is just as well not to advertise things too much in advance, for life has taught me if I want people to do certain things not to give them time to make up excuses. Take them a bit unawares and after one or two honey meals they are, as it were, "ready to eat out of my hands."

So begin your honey cooking with dessert. Fresh fruits, such as ripe bananas, peaches, berries, served with whipped cream and a little honey, make a dessert fit for the gods, royalty, or even our most critical guests or relatives, and with canned fruit, such as pears, peaches, apricots, honey is simply the last word in a suitable ending of a delicious meal.

Honey Rice—To one and one-half cups cooked rice (since we are health cranks we prefer brown rice) add two well beaten eggs, one-fourth cup honey, one tablespoon butter and one-half teaspoon salt. Stir well, then add two cups milk and one-half cup raisins. Bake in a well buttered dish, setting pan in hot water, in moderate oven, until well browned and firm. Remove from oven and serve hot or cool with cream and honey. A little cinnamon may be added if desired.

Last Minute Honey Dessert—Have you ever been confronted on a busy morning with a houseful of guests for luncheon when you expected to give John and the youngsters a handout on the pantry shelf? Well, I have, and here is a dessert that has helped out many a time: On each dessert plate lay half a canned peach. In its hollow put a ball about as big as its pit of crystallized honey. Place the other half on top. Put a clove where the stem should be and a dash of red coloring on its cheek; add a border about your peach of whipped cream sweetened with liquid honey, and serve with your best smile. I think your guests will like this, both desert and smile.

Two-Minute Surprise — In some way hasty dessert seems to be a habit at our house, and here is another: Into each service sherbet crumble three macaroons (or dry cake crumbs will do), add one tablespoon pineapple juice, let stand two or three

(Continued on page 516)

AMERICAN HONEY INSTITUTE
FOUNDED 1928
BEE INDUSTRIES ASSOCIATION OF AMERICA
CHAMBER OF COMMERCE BUILDING
INDIANAPOLIS

DR. H. E. BARNARD, PRESIDENT

Dr. Barnard attended the Michigan-Ohio beekeepers' tour on August 6, also the New Hampshire beekeepers' field meeting at Durham on August 16.

Miss Fischer, of the American Honey Institute, attended the beekeepers' Chautauqua at La Crosse and gave several honey demonstrations before good attendance.

At all of these meetings beekeepers reported increased sales of honey to local bakers and an all-around increased interest in honey.

Ninth Annual Food Show of Chicago Herald-Examiner

Prudence Penny, of the Chicago Herald-Examiner, has asked Dr. Barnard to be one of their guest speakers at their ninth annual food show at the Coliseum, September 21 to 28. The Home Makers' conference meets from 11 to 1 o'clock on Monday and Tuesday, September 23 and 24. Dr. Barnard will give a general talk on this day with the title "The Part Sweets Play in the Diet." This talk will also be broadcasted over KYW.

Honey Helpings

The fourth number of "Honey Helpings," a mimeographed circular of suggestions for the use of honey in various ways in food, interspersed with interesting comments on honey, is just being mailed to school teachers, food workers, syndicate writers, food column editors, and other interested specialists. The entire number is devoted to food for school children. Summer holidays are over and children are again in the harness for school routine. School work demands physical fitness, and more than ever a child's activity and growth must be determined by the foods he eats. The meals must be planned and apportioned carefully. Milk, hot cereals, vegetables, fruits, protein combinations—all must be made up in interesting and enjoyable ways.

Honey helps to make many of the combinations more palatable, and if a child will eat more of a food that is good for him when the food is made the honey way, that's the way to serve it. Honey is an energy-producing food, serving as fuel for muscle activity and contributing also small amounts of phosphoric acid, lime, nitrates, sulphates, carbonates, combined with salts of lime and iron.

Beekeepers who are in touch with their school food workers may wish to distribute some of these honey suggestions for school children, and if they will send the names and addresses of these teachers to the American Honey Institute, Indianapolis, Indiana, we will be glad to mail out this special number.

A Booklet for Bakers

"Bakers' Helper," the leading journal of the baking industry, has published the fifth and last number of a series of articles on "The Use of Honey in the Bake Shop." Type and cuts illustrating these articles have all been held and are now being used in printing a 36-page booklet.

This is the most important compilation of honey formulas for bakers that has ever been published. It should be helpful to all beekeepers and dealers in honey who are soliciting the baking trade. The Institute is arranging to have a large edition printed. Through the cooperation of Bakers' Helper, it will be possible to supply these booklets at a nominal cost.

The larger the number, the cheaper the cost will be, but we can offer them in lots of one hundred at $5.00, one thousand at $42.00, and in lots of more than a thousand for a slightly lower figure. Copies will be available shortly. The names of those distributing the booklet will be imprinted on the front cover page at cost.

The greatly increased interest in honey as a sweetening agent in the bakery can be stimulated by the wide distribution of this booklet. Send five cents in stamps, preferably one-cent stamps) for a sample copy.

New Outlets for Honey

The latest and largest food merger, known as Standard Brands, has brought together the organizations of the Royal Baking Powder Company and the Fleischmann Yeast Company with its several subsidiaries. Both of these are interested in honey—the Royal Baking Powder Company because it sees the importance of stimulating an interest in the use of its product by such compelling phrases as "Honey and Hot Biscuits" and "Honey and Hot Waffles"; the Fleischmann Yeast Company because of their desire to im-

(Continued on page 516)

View of the apiary of the Southern States Bee Culture Field Station at the University of Louisiana, Baton Rouge

A Glance Through the South

By Jes Dalton

Florida Crop Just Fair

On an average the honeyflow in Florida this year has just been fair. The orange failed to yield. The saw-palmetto failed except in a few locations. Tupelo did very well. Black mangrove did well. Cabbage palm and partridge pea yielded a fair crop. Indications are good for a wild sunflower flow this fall.

Fruit Fly Spray Not Harmful

So far the spray used in fighting the Mediterranean fruit fly has done very little injury to bees. There have been a few instances where some vine or tree in bloom was sprayed and serious damage resulted.

Inspection Season in Florida

R. E. Foster, apiary inspector of the State Plant Board, Florida, reports the inspection of 52,442 colonies of bees for the year ending June 30, and 85 colonies were found with American foulbrood and burned. As part of his work, Foster conducted a very successful short course for beekeepers at Gainesville during "Farmers and Fruit Growers' Week," with good attendance.

Crop Down in Louisiana

Louisiana beekeeping is so varied, some running for packages and others for queens, some for both and others entirely for honey, it is hard to tell exactly the extent of the failure this year. Some of the heaviest producers, the Sexton interests in the Atchafalaya district, report about 50 per cent of a crop. Inspectors say there are very few districts where bees have done normally and many colonies destroyed by worms, a sure sign of a poor season.

At Baton Rouge and St. Francisville the flow was practically an entire failure. New Orleans, usually a good territory, reports not up to normal, but bees in good shape for fall flow.

Alabama Goes Half and Half

Reports indicate that, while spring was a failure in Alabama, later flows will probably save heavy feeding and in some districts a small surplus will be harvested. This is particularly true of the Montgomery territory. South Alabama secured a good crop.

Some instances of heavy losses from cotton spray are reported from the cotton districts, one shipper, Mr. Berry, losing entire yards from this cause.

Stabe Returns to Louisiana

Professor Henry H. Stabe is returning to the University of Louisiana to take charge of the classes in beekeeping. He has been on leave of absence, taking work on his doctor's degree at Ames, Iowa, where he majored in entomology, taking as his subject for study the "Embryology of the Honeybee."

Professor Stabe was secretary of the Louisiana association through its early days. He will offer four undergraduate courses in apiculture at the university.

The university has for years been headquarters for organized beekeeping. Under Doctors Gates and Rosewald it managed to keep in closer touch with beekeepers individually and collectively than is often true. With these two, together with Professor Stabe, coupled with the Southern States Field Station, located in the same building, the university will be able to offer opportunities to students second to none in the country.

The state association is devoting its energy to the support of the field station and to working out a cooperative marketing plan under the direction of State Entomoligtst Mr. W. E. Anderson, who is now president of the state association.

How hives are arranged in the apiary of the Field Station

More About Our September Cover

We failed to state that the apiary shown on the September cover, which we mentioned as being up on Mount Hymettus, belongs to Mr. Nicolaidis, one of the regular subscribers to the American Bee Journal. Mr. Nicolaidis uses American hives and methods. The apiary shows a portion of his outfit.

Honey from the wild thyme which grows on Mount Hymettus has always been held in high repute and is in great demand as an article de luxe. There is only one section of the United States where a similar thyme is to be found, and that is in the Catskill region of New York State, around Grand Gorge. There it blankets the hillsides and is a truly beautiful plant, producing year after year a very good grade of honey.

Nueces Valley Association Makes a Health Appeal

The Nueces Valley Texas Beekeepers' Association, which sells the "Guajillo-Catsclaw" brand of honey, makes a health appeal to consumers in a circular letter to retail dealers who handle their products. The letter is supplied only to dealers who agree to circulate it. It is having a noticeable effect in increasing local sales. The letter reads as follows:

Dear Consumer:

Is health important to you? If so, you will be interested in learning that the leading doctors of today are becoming alarmed at the NATIONAL CRAZE FOR REDUCING. This fad is now endangering the health of hundreds of thousands of the oversized, who think they must quit eating to reduce. This is where danger begins. Any physician will tell you that an underfed, undernourished human body is more likely to become the prey to colds, anemia, tuberculosis and other contagious and infectious diseases than one nourished by wholesome and well balanced foods.

IF YOU WISH TO RETAIN HEALTH AND FASHION'S SLENDER FORM, EAT PURE HONEY. IT IS HEALTHY AND DOES NOT FATTEN.

Pure honey may be used successfully for every purpose where you would use sugar. Cakes and cookies made with honey keep fresh indefinitely, never drying out as do sugar cakes and cookies. Delicious pies can also be made with honey .

Write the U. S. Department of Agriculture, Washington, for honey cook book, or the Kellogg Company, Battle Creek, Michigan, for recipes.

Use honey in lemonade, on grapefruit, on cereals, as a syrup for sundaes. Note how honey blends with fruit, bringing out the flavor. If you have not tasted the flavor of flowers in your food, you have missed a rare treat. Too, honey is the most economical sweet. It is so concentrated that you will require only one-third the quantity of honey that you would use of other sweets.

Honey is the only sweet germs cannot live in. Honey is the only sweet containing vitamins A and B—Health essentials (doubtful — Editor). Honey is the only sweet that will preserve the teeth. Honey is the only sweet that will not produce fat. Honey is the only sweet that has not produced a case of diabetes or Bright's disease; the only sweet patients suffering from these diseases can eat.

The Bible tells us about honey. It was the only sweet known to the ancients. Many people in the early days of Bible history lived to be 250 or 500 years of age. Today we live on refined sugar and other refined foods, and man's life span averages forty years.

Pure honey cannot be made by man. It is sipped from dew-kissed flowers by bees, the only winged insect domesticated by man. However, there are many honey imitations on the market that are deceiving. Beware of them. The Nueces Valley Beekeepers' Association label is your guarantee of Purity and Quality. Every package bearing the Association label is pure bee honey. Insist on 100 per cent pure honey. Accept only the package that bears our label.

Yours for health,

Nueces Valley Beekeepers' Association.

New Edition of Queen Book

The American Bee Journal has recently published a new edition of "Practical Queen Rearing," by Frank C. Pellett. This little book has had a wide sale and three editions have already been sold. Previous editions have all been similar in subject matter. The new edition, which is the fourth, is revised. New matter and new illustrations are included, as well as a new binding.

In concise form is given a description of the methods of America's leading queen breeders, together with the equipment used. The whole is freely illustrated with photographs, mostly taken by the author, which make the details very plain to the reader.

Many hundreds of beekeepers have learned the details of queen-rearing from this book, which has met with great favor in both American and Europe. The price remains at one dollar per copy, as in previous editions.

Daniel B. Hersperger, Former Student of Langstroth, Passes Away

Daniel B. Hersperger died at the family home in Ordway, Colorado, on Saturday morning, May 4, 1929.

He was born in Ireland in 1855, obtained his first bees at 19 at Jefferson, Maryland, at which time he worked with Mr. Langstroth. He came to Colorado as a young man of 22, finally entering the bee business at Ordway in 1909.

At the time of his death he was one of the most prominent beekeepers in the state. He was a member of the Colorado Honey Producers' Association and of the Colorado Cooperative Association.

American Foulbrood—Fire or Carelessness?

On page 416 of the American Bee Journal there appears an article by John Gray condemning the bee laws of California.

John Gray, if you have a better method than we are using in California, why do you not use it? Then when the inspector comes around you will have no American foulbrood for the inspector to see and burn.

You also make the statement that it is as easy to compel proper treatment of disease as to burn.

Over twenty years' experience has shown us that your statement is absolutely wrong and disease getting worse. The burning method is showing good results. American foulbrood can be eradicated by careful work in burning, but you will never conquer American foulbrood by playing with it, and that is what over half the beekeepers will do.

Mr. Frank E. Todd, in charge of apiary inspection work in California, is a capable and tireless worker and is doing fine work. I have had over twenty years' experience with American foulbrood and the past five years as inspector, and I know fire is getting results that we never got before.

Now just a shot at our friend Jay Smith Mr. Smith, in my opinion you are doing much more damage than good by advocating the use of formaldehyde gas on American foulbrood combs, for there are few beekeepers as careful as you, and many have had heavy loss who have used your treatment.

George W. Moore,
California.

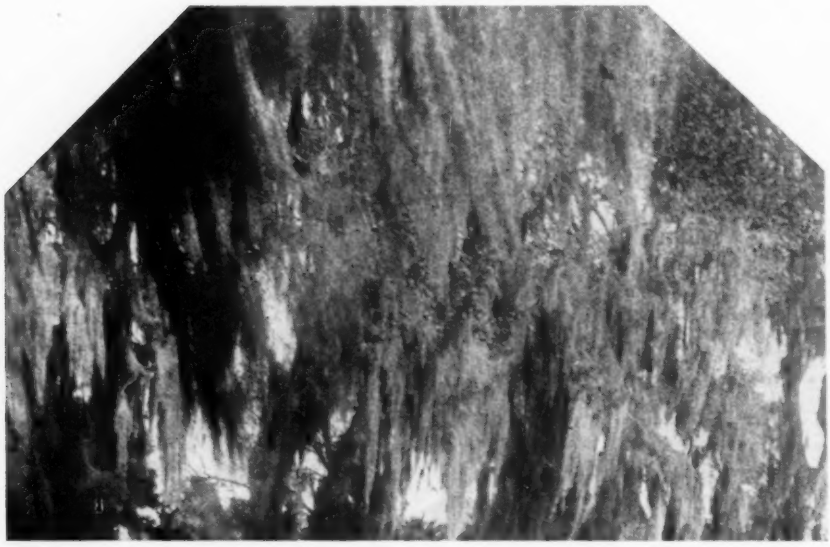
About Drone Eggs in Worker-Cells

Just reading an article from Mr. Smith regarding small queens laying drone eggs in worker-cells. I am aware that they do when they begin to fail. According to his argument, a large queen never would lay eggs in worker-cells that would produce drones. And if this is true, and if the touch of the cell had anything to do with it, small queens would lay more drone eggs than large queens. I have some very small queens and I have some large ones, and I never find drone eggs in worker-cells from the small queens any more than from the larger queens.

Also, I cannot agree with Mr. Smith about a queen-cell being contracted to the size of a worker-cell, when the queen places an egg in it, for I have seen eggs in queen-cells where the opening of the cell was larger than that of a drone-cell.

V. E. Dehart,
Needmore, N. C.

Spanish moss festoons all trees in southern swamps



Bees Along the Apalachicola River

Attractions and Problems of Beekeeping in the Swamps of Western Florida

By Frank C. Pellett

IN the swamp region of the Gulf Coast one finds beekeeping conditions which are different from any other with which I am familiar. Here is an area where good crops can be harvested with proper management, but which presents some peculiar problems not often found in other sections. There are sources of early nectar and pollen followed by a heavy honeyflow, but there are several months in summer and fall when no pollen is available and it is difficult to carry the bees through alive. Good locations are difficult of access and many beekeepers find it necessary to make trips to and from the apiaries in boats. It is a unique and interesting region and one difficult to fully describe.

Wewahitchka, Florida, is a beekeepers' town. By that I mean that the most prominent citizens of the community are beekeepers and there are more of them there than one usually finds in any one place. When I arrived at the hotel in February and enquired how many bee men were within reach, I was told that more than a dozen extensive honey producers made that place their home. I did not see them all. Some were at the apiaries in the swamp, some I could not locate at all, but I did see several of them and was much impressed with some of the apiaries visited.

Wewahitchka is a small town which is isolated from the rest of the world. It is situated in a vast turpentine forest with a swamp on one side and a dead lake on the other. It has no railroad, but has long depended upon a steamboat for communication with the outside world. Just now the state of Florida is building a fine hard-surface road connecting with Marianna at the north and with Apalachicola on the Gulf. With modern automobiles and trucks, ready communication is now assured.

The first man I met was H. E. Rish, secretary of the Florida Beekeepers' Association. He kindly took me in charge, helped me to find the bee men, and showed me the way along the winding trails to such bee yards as were within reach by auto.

There are some good beekeepers and some well kept apiaries in that region, although most of them are moved away for part of the year.

For several days it had been rainy and the water was rising in the river and the swamps, but we had little intimation of the extent of the floods so soon to come. Hardly had we passed on to points farther east than the papers were filled with news of heavy floods throughout that region. In an area where travel is much by water at all seasons, where the bees are kept permanently on platforms in anticipation of floods the water came higher and higher until it was necessary to build new scaffolds above the old ones, and even the roads were under several feet of water. When visiting one apiary on the river the fact was mentioned that the water was getting high, yet the scaffold on which the bees rested was about ten feet above the water at that time. Later I was informed by letter that the water had risen three feet above that scaffold and that it had been necessary to erect another on that to keep the bees above the water. When the water stopped rising it was again within a few inches of the entrances of the hives.

At top — Apiary of A. E. Lanier, near Wewahitchka. Center shows bees on platforms high above the water to guard against floods.

The motor boat, as shown below, serves in place of the auto to swamp beekeepers who, in many cases, have no other means of reaching apiaries.

Such are the conditions under which the bee men work in the swamp region of western Florida. A man must know the region in order to be successful there. He must know the peculiarities of the honey-flow and how to anticipate the periodic floods which are so disastrous to those who are unprepared for the rise.

There is an immense expanse of swamp which appears to be beyond permanent drainage, so should remain good bee pasture for centuries to come. It is but little above sea level and forms a basin into which the streams from the north pour forth their waters on the way to the ocean.

Local Problems

One of the most serious problems is the loss of field bees which drop into the water when returning heavily loaded to the hives. This is especially serious in seasons like the past, one when there is a combination of unusually high water with heavy honeyflow. Letters from local bee men estimate that in some apiaries the loss from this cause has ranged as high as 50 per cent of the field force. Not only is the crop greatly reduced in such cases, but the colonies approach the end of the breeding season weak in bees and find it difficult to recover.

Mention has been made of the shortage of pollen during late summer. This appears to be the greatest obstacle to success in the swamps of west Florida. Bees build up readily enough in spring, but the heavy honeyflow from tupelo exhausts the force, and unless brood rearing continues actively until the close of the flow, it is a difficult matter to meet the situation that follows.

The flow usually ends suddenly, and if the hive is filled with old bees they disappear rapidly and soon there is a mere handful of bees to defend the hive against robbers and moths. There are many places in the swamps where losses are heavy if the bees remain on their stands throughout the year. It is the common practice, however, to move them up the river to the northern part of Florida or into the state of Georgia, where there are sources of pollen not available in the lower swamps. Rish estimates that it costs on the average about two dollars per colony to move the bees north and bring them back again.

Where one has the bees at a long distance from home for several months, there is always the danger of theft or fire, or visits of wild animals. Always also is the ever present danger of floods which may rise higher than expected. Unless one is well acquainted with the neighborhood, he may underestimate the height to which the waters rise. It is difficult indeed to imagine that water can rise as high as it does periodically in that region, and many a beekeeper has lost heavily, some to the point of financial ruination. During the recent flood, one bee man whom I visited lost one hundred and fifty colonies through the collapse of the scaffold supporting the bees. On another occasion another lost four hundred colonies which he was preparing to move southward in anticipation of the flow. The rising waters delayed the steamer which was to carry them down, and before they could be reached they had been carried into the raging waters and lost to their owner.

J. L. Morgan, visiting an apiary in a swamp which can only be reached by boat

H. E. Rish, Secretary, Florida Beekeepers' Association

Local Advantages

In early spring the swamps offer good pasture from the red or swamp maple, which yields both nectar and pollen abundantly. On the higher land bordering the swamp, climbing over bushes and fences, there is the yellow jessamine, which the bees work eagerly. Then the ti-ti offers an addition to the other spring sources. Bees which are even moderately strong may store a substantial amount of surplus from ti-ti. The honey is of inferior quality, but it is important for brood rearing. These early sources put the bees into good condition for the main flow, which comes from tupelo. There are thousands of acres of good tupelo range, and tupelo offers a flow to make the heart of a bee man glad. Big crops are sometimes harvested, but it is not the occasional big crop, but the long time average that insures prosperity for the beekeeper. At Wewahitchka, local beekeepers estimate that they can depend upon an average of from ninety to one hundred pounds per colony from this source. One man reports an average of eighty-two pounds per colony of surplus honey from tupelo for a seventeen-year period on the Apalachicola River.

Tupelo honey is of fine quality and does not granulate, which insures a market for the product at a price above that of other honey common to the southern states. Most of the crop goes to market in barrels. Bottlers find that by blending the non-granulating tupelo honey with other sources, they can greatly delay the granulation of the blend and thus help materially with their marketing problem. The granulation of honey on the grocers' shelves is one of the serious obstacles to present day sales. Until the public has been educated to understand that granulation is a natural and quite desirable process, the difficulty will remain.

Florida beekeepers are making an attempt to market the tupelo honey through one central selling agency to avoid the competition of one beekeeper with another, which results in depressing prices. It is to be hoped that they will succeed with this venture.

On the ridge of land between the swamp and Dead Lake there are several apiaries which appear to be safe from flood and from heavy loss of field bees through dropping into the water when approaching the hive. One of these, owned by A. E. Lanier, is shown in the picture. This is a decidedly attractive spot in the woods, far from any sight or sound of commerce. Here the owner brings his family to spend several weeks in summer. He has planted a few orange and peach trees and a bit of garden to make it homelike during the busy days with the bees. Such situations are not very common within reach of good pasture.

In order to understand the real situation in the swamps, I made a trip of twenty-five miles by motorboat from Apalachicola with J. L.

(Continued on page 505)

Honey Exhibit at the Brockton Fair

By J. H. Merrill

ALTHOUGH New Englanders are familiar with the Brockton Fair, beekeepers in other parts of the country would certainly be surprised at the excellence of its honey exhibit.

The accompanying picture represents a section of the space devoted to this display. The other section is made up of the honey exhibit proper, consisting of both extracted and comb honey in varying quantities, granulated honey, chunk honey, and honey vinegar. Included in this exhibit were some fine specimens of both comb and extracted honey produced from the clethra, that almost never-failing source in southeastern Massachusetts.

Another unique flavor was found in honey produced from cranberry blossoms. This is a dark honey, but very pleasant to the taste.

Although the Brockton Fair is promoted entirely by the Brockton Fair Association, this exhibition of honey would have done credit to any state fair.

The portion of the exhibit illustrated here was devoted mainly to apicultural products and also to a demonstration of the use of honey as a food and in making of candy.

J. B. Perkins, of Campello, the superintendent of the exhibit, and Mrs. Perkins, together with their assistant, were kept busy throughout the fair serving honey sandwiches and answering questions on the use of honey in the home.

Various types of hives were on exhibition, ranging from the hollow log and the straw skep, to the most modern beehives. An exhibit of live bees in glass hives, set in a field of imitation grass which was plentifully scattered with artificial flowers, made a very interesting and attractive showing.

Most of those who exhibited honey live within a fifty-mile radius of Brockton, and the character and quality of their exhibits was of the highest order. When viewing this display one would hardly believe that such an exhibit could be made in a state like Massachusetts, whose reputation depends upon its manufactured products.

It is seldom that an exhibition of honey combines in such a pleasant way both the educational and interesting points about honey. Beekeepers visiting this display could learn much to help them in their business, while the housewife would become acquainted with the value of honey in the home. Thus, at the same time, the exhibit would stimulate an interest in beekeeping and demonstrate the possibilities of honey as a food.

Again—Do We Need More Beekeepers?

In the various publications I have seen at different times discussions on the subject, "Do we need more beekeepers?" I think we do; any time a person starts beekeeping without a proper amount of study and up-to-date equipment, he is sure to fail so badly that he will quit; and it is well that he does, because hit or miss methods are sure to be disease breeders.

If a person does a proper amount of studying before starting with bees, then buys up-to-date hives and inside furnishings, not to mention pure-bred bees and the best of queens, he is sure, with proper care, to make a success of his business from the start. There are excellent bee books to be bought at a very reasonable price compared to their real value. The bee journals are also full of up-to-the-minute information and are very easy to pay for, and if anyone contemplates starting bee culture the sure way to succeed is to study hard and then apply the knowledge gained to work.

We have available the knowledge gained by many years of practical experience of many of the greatest bee masters of middle ages as well as modern times. My idea of a beekeeper is a person who makes a success of beekeeping, not one who has a few swarms in barrels or old hollow logs for a few seasons and then gradually lets them die of disease or starve out because of lack of proper hives and attention. It all depends on what constitutes a beekeeper. All other business requires plenty of study, and because bees work of their own free will is no reason why they should not be given the best of care. One more reason why I think we need more beekeepers is because the more people study bees, the more they are sure to talk bees and honey, and in that way the public is sure to learn more about the uses of honey as a food, thus helping to advertise honey. Since other business spreads its "ads" all over every paper and magazine, why not beekeeping?

Charles Miller, Wisconsin.

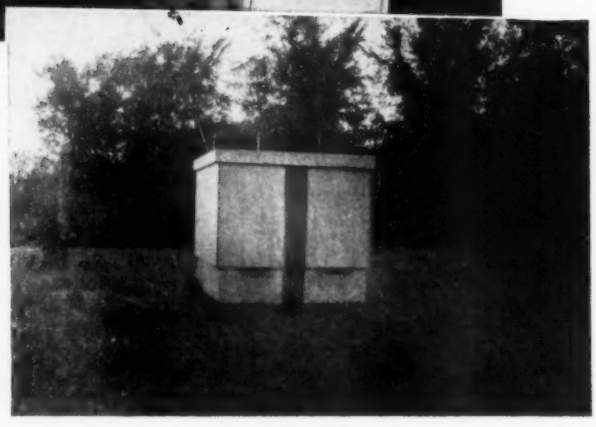
Evidence of Ancient Man

The discovery of a stone arrow or spear point lying directly under the bones of a mastodon has been made at Melbourne, Florida, by C. P. Singleton, zoologist of Harvard University, and has just been announced. This evidence strengthens the much-debated theory that there were human beings in America thousands of years ago, when mastodons and mammoths inhabited the country.

Dr. J. W. Gidley, of the Smithsonian Institution, who has made previous finds of stone weapons in association with prehistoric animals at the same site, also announces an important discovery consisting of a large stone tool. Scientists who doubt that man has inhabited this country more than four or five thousand years have suggested that the Indian weapons found with the fossil animal bones could have slipped into deeper older layers of earth than the surface layer of their own age. The large tool, of the type known as a turtle-back flaker, would not be likely to have worked its way into deeper level, Dr. Gidley points out. It was found four feet from the surface and two feet beneath the upper layer of the ancient formation in which the fossil bones lie buried.

A Packed Base for the Four-Colony Case

Case taken apart to show packed base and construction details.



Case put together, with bees in. Dark stripe is to help bees locate home.

Many will agree that the most time-consuming part of packing four colonies in a winter case of this design is getting the bottom packing in and the colonies located shipshape. There is usually as much time taken for this part of the work as for all the rest of the case, sides, top, hingeing and all.

The above pictures show a four-colony case, designed by E. L. Hoffman, Janesville, Minnesota, with the bottom packed permanently, ready for use. The other parts are made as in the usual four-colony case. There are several inches of packing on the bottom, as seen in the lower photo, where the case is all assembled. Note the high entrances.

The colonies are set in on the strips shown in the upper picture. These are narrow enough so the space between the bottoms of the hives and the floor of the case forms an air space which is really an addition to insulation. After the hives are in position the sides are packed, then the top and the cover placed over all.

The use of cushions on top to hold the packing material is also suggested as a labor saver. They may be easily removed for any examination and quickly put back in place.

Note the broad, dark stripe up and down the front of Hoffman's case. This serves as a marker for the bees in flight so they will more readily return to their own side.

Size of Cell No Influence on Sex

By Alfred H. Pering

The article on parthenogenesis appearing on pages 416-417 of the August number of the American Bee Journal, by Orison Smith, has attracted my attention. I am prompted to say that my observation is that circumstances have a very great deal to do with bee behavior. At one time I had a colony with clipped queen to persist in their efforts to swarm. I would go through the hive and destroy all queen cells, whether sealed or unsealed, whether the cells were well developed or just embryos. I would let the swarm return, seeing to it that the clipped queen returned with them. The swarm would come out again the next day or the second day. On looking for queen-cells again I would find the cells I had only partly destroyed, those that I had mutilated just enough to get at and easily remove the larvæ, had been repaired and had an egg in each one and other cells started around larvæ.

In my first two attempts to destroy the completed or sealed queen-cells, I had cut them open with a downward stroke with a sharp knife, sliting a part of the side of the cell entirely off, leaving about half the cell lengthwise intact. These cells had eggs in them, and the cells were too large for the regulation of the sex of the egg by the sense of touch, (1) as Mr. Smith seems to think. After two attempts to stop the swarming by just removing the larvæ and eggs from the partly destroyed cells, I made a complete job of getting rid of the cell. Only "a shell-hole" remained where the queen-cell had been. Then when the swarm would issue again I would find some of these holes repaired, an embryo queen-cell and an egg or very young larvæ in it, if time enough had elapsed before the swarm came out again. Finally the bees killed the clipped queen, or something else came of her, and I was forced to allow them to rear a queen of their own and be satisfied. The queen was just a year old. I removed all brood except one frame upon which I left one cell. The swarming then stopped.

This convinces me that the sense of touch or the size of the cell has nothing to do with sex of the egg; besides, I have found eggs in the "buttons," or empty acorn-shaped cells, along the sides and lower edges of brood combs during the height of the swarming season, and these were afterward completed into queens.

Again, on another occasion I had some doubts of the statements made by authorities as to the number of

eggs a queen could lay in a given time. To test the matter, I prepared a frame of thin super foundation. This thin foundation was held in the frame by the use of several extra wires, and wires were used on each side of the thin sheet of wax. Wires were nearly opposite each other. I felt that I should use the extra wires on each side, as the wax sheets were so thin the wires could not be imbedded sufficiently to hold so thin a sheet. Two sheets to the frame were used, which nearly filled the frame. This frame was inserted between two frames of nearly all sealed brood after removing all the other frames and filling their places by dummies. These three frames were covered by a normal amount of bees and they had a young queen (less than six months old). I got too anxious to see results to wait twenty-four hours and left the frame only over night, or about fifteen hours. I found that frame just about full of eggs. The splice, or space between the two sheets of thin foundation, was well fastened together and the foundation cells drawn out a little, more in some places than others. This to me would indicate that the size of the cells has nothing to do with the sex. I may have calculated the number of eggs laid at the time, but kept no record of it. I did find that a queen, when circumstances are right, can "surely spread herself."

Florida.

(1) (In numerous cases the bees themselves carry an egg into the queen-cell. They evidently did so in this instance, as the queen could hardly be expected to lay eggs in partly destroyed queen-cells. — Editor.)

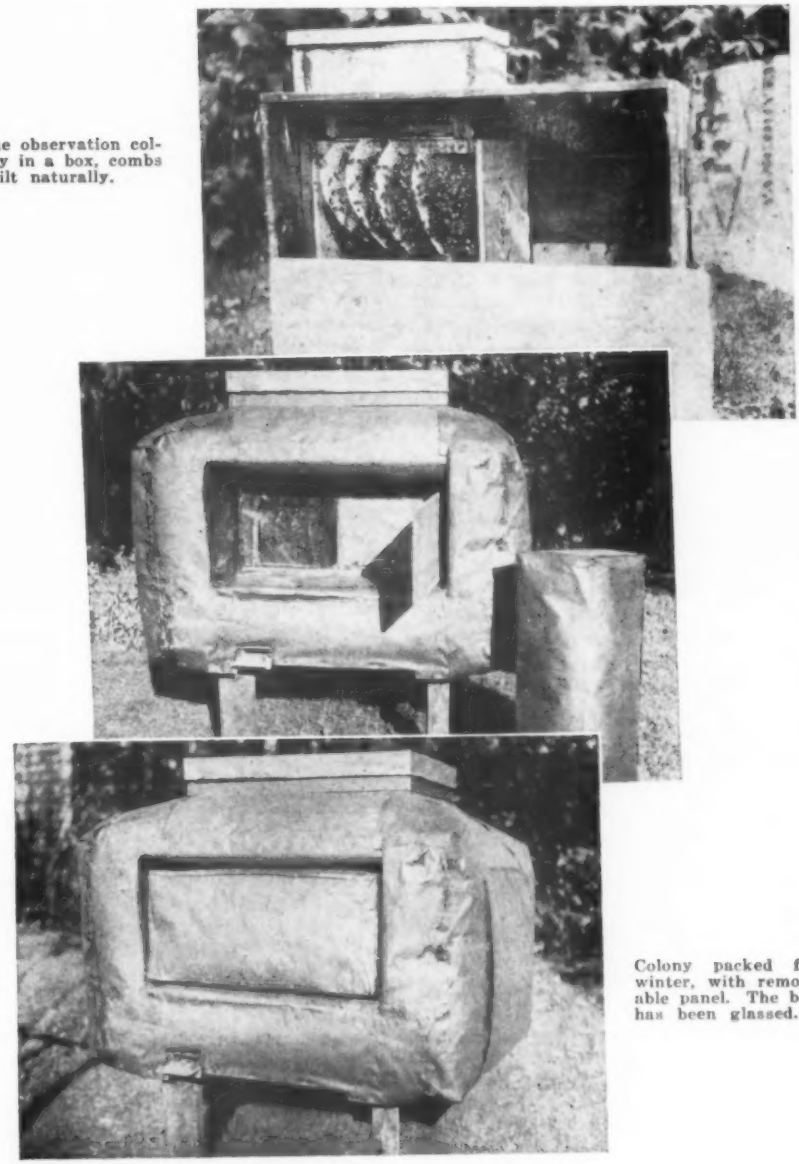
Misbranding Outlawed in Texas

Sale of adulterated honey in the local markets in Pearsall county led to an extended investigation on the part of the beekeepers' association and a petition to Hon. John N. Garner, congressman from the district, to initiate steps for Federal action in suppressing the sale of adulterated products, branded as pure honey, this being a violation of the national pure food law.

Charges have been filed against two persons, one of them being a woman. Many local merchants were retailing the adulterated honey without knowing it to be such.

Texas honey producers have been reluctant to make a complaint against innocent merchants, but have been vigilant in finding those who were actually imposing on the trade. State officials have given their assurance that the violators will be prosecuted vigorously. W. H. M.

An Observation Hive for Winter



The observation colony in a box, combs built naturally.

Colony packed for winter, with removable panel. The box has been glassed.

The pictures show an observation hive developed by a friend of mine whose knowledge of beekeeping is quite elementary. He found a stray swarm under a railway viaduct in the city of Vancouver, British Columbia.

Being mainly interested in watching the bees at work, his first box-hive, as shown, has the upper half of the front on hinges, and behind this a panel of mosquito wire netting. When I was introduced to this hive during a visit last September it was too late to transfer to a regular hive, so I suggested that the bees be packed as they were and transferred in the spring.

He later sent me the pictures of his handiwork. You will notice that the observation feature still remains, but the wire netting has been replaced by a celluloid window and a packing plug fits snugly over the door. See the super which contained two empty comb honey sections that the bees had completely ignored, much to my friend's mystification and disappointment. He had gone to the trouble of buying two sections of comb honey at the store to cut out the honey and give his bees the empty sections. The bees apparently were anxious to make a nice picture, judging from their symetrical arrangement of the combs.

G. F. Pearcey,
Canada.

Shall It Be Control By Fire or Control By Sterilization

By George Thompson

I DO NOT agree with F. C. P. on the eradication of American foulbrood by constant burning. He says (page 279, American Bee Journal):

"There is no question but that the disease can be treated and bees and equipment saved if care enough is used. However, it is now apparent that treatment is often more expensive than the destruction of the diseased colonies. If every case of disease is thus disposed of quickly and completely, the spread is checked and in the long run money is saved to the beekeeper. . . . It is only when destruction of diseased colonies is the practice that substantial progress appears to be made in control."

My opinion: If the policy of burning every colony found affected with American foulbrood, together with its equipment, was carried out to a successful conclusion, it would take a number of years to entirely clean up any state affected with disease, and in the end there would be no bees, beekeepers or equipment, except that in the factories.

I have had considerable experience in treating foulbrood, picking up sixty-five cases one fall, from a diseased bee tree being cut down by people after a little honey.

I had burned and destroyed bees and full equipment on the first appearance of a cell or two of disease until I got tired of destruction, as it did not check the disease from appearing in previously clean colonies.

I have successfully treated affected colonies by shaking the bees onto starters or shaking in one week and sterilizing all combs, including brood and pollen combs, and am now making my living from those same colonies and figure today that I am 100 per cent clean. But it is a case of always looking for it whether you think it is there or not.

I know many others whose experience tallies with mine — men who, had they continued burning, would now be out of business and on the labor market. But they have cleaned up, or at least have the disease under control. When there is a good method of eradicating foulbrood with the formalin treatment, a method only requiring reasonable intelligence and watchfulness, with comparatively little expense, considering the amount of money tied up in equipment, then it seems to me that if the state inspector put the same amount of effort into a campaign of destruction we would have a better control of the foulbrood situation and more sympathetic cooperation between the beekeepers and the inspectors.

It is comparatively easy for any small group of beekeepers to obtain legislative action requiring all diseased colonies to be burned, but, like many other laws that conflict with the honest opinion of a large proportion of those concerned regarding their value, they are difficult to enforce, especially when the destruction of personal property is involved.

Let us analyze the foulbrood situation and compare the relative merits of **control** by **burning** and **control** by **sterilizing** the diseased equipment.

The appearance of American foulbrood in a colony is only indicated by the dead and decayed larvæ. We have no means of proving how it came, in lots of cases, when it came, or where from. We only know that it is a contagious disease, transmitted through a germ that came from a diseased colony. There are so many ways that the bees may have got the disease. The common one is a strong colony robbing out a weak, diseased one, or it may be the bees find a discarded honey container that is thrown out by the housewife with a little honey still sticking to it that was extracted from a diseased colony over a thousand miles away.

The fact remains that we do not know anything about it until it shows in the brood. It cannot be seen in the honey or in the super combs. Suppose we find it in one colony and we burn that up right away. What proof have we that twelve to twenty more did not get a few loads of that honey and store it above the brood? Extracting will not take it out, and the first time those combs go back to the bees you've got it again. Plenty of beekeepers figuring they are all clean do not keep track of their combs as to what colony they came from. Consequently they go back on any colony, so it is spread in the yard by the beekeeper himself. Possibly some of the colonies stored what they got in the corners of the brood frames which might stay untouched for a season or more, until, running short of stores, it is used up, when you have another case.

Shall we still be having bonfires of bees and equipment until we get disgusted and quit? No. Get a formalin treatment outfit and get busy. Disinfect everything during the idle time when the combs are off the bees. Keep track of your supers and combs and put them back on the colony they came from to dry off after extracting, and in that way you can keep it confined down to the colonies that have it until such time that it shows up in the brood.

To compel a beekeeper to burn up every case of American foulbrood as fast as it appears would put half the honey producers out of business in a few years and we would still have American foulbrood with us.

Public opinion among beekeepers is influenced by what they read in the Journal, and when a prominent place is given to a report sent in by apiary inspectors regarding the value of the area cleanup system through continual burning, many beginners and uninformed beekeepers get a wrong impression of their value. Any beekeeper who is familiar with American foulbrood and has had experience in treating it will take with a grain of salt such statements that disease has been reduced by such methods from a high percentage to a low one and it is time such statements were modified to fit the facts by articles showing the other side of the story.

The apiary inspector has less chance of controlling disease by burning than the beekeeper has, because nine times out of ten he knows nothing of the cause of the outbreak when he appears on the job. He may burn up and destroy an odd diseased colony or several in an apiary and declare the balance clean, but of what value is his report when the supers from the diseased colonies may be stored among hundreds of others in the honey house? He cannot condemn the bunch. The beekeeper does not know which is which, and when they are eventually used the trouble shows up again.

Lots of beekeepers have enough drawn combs to take care of a maximum crop, but they are not all used every season, and when the time does come that they all go on, it shows up again, perhaps years after the diseased colonies were burned up.

I guess your inspectors have too much territory to cover to wait on the job to see if other colonies do stay clean. Perhaps they are too busy to even pay a return visit to an apiary treated for disease, so to be **sure** of their job of cleaning up they must burn bees, hives, combs, and all equipment except those made of metal and those they should see were thoroughly scalded out. Maybe they would even have to scorch the beekeeper, too, but I guess he would be so hot by this time that he would not need it.

There may be something in favor of burning up both bees and equipment in the one- or two-hive apiary or where lack of interest shows in the neglect of a larger apiary that is badly diseased, but in both those cases everything should be destroyed by fire by the inspector himself, not left to the beekeeper to do.

Education is the only solution of the foulbrood problem and only those that take an interest in their bees will want that education. Men capable of treating the beekeepers in a considerate manner and teaching them to be their own inspector, to know the diseases and how to treat them, should know all about a sterilizing outfit, explain it to the beekeeper, get him interested in working with one and then forget all about that one as a menace to others and go after the next one worth helping. Then, after a term of years, we will be able to read the inspectors report regarding the reduction of foulbrood in a given territory with a smile of belief and satisfaction.

A forceful campaign of cleaning up American foulbrood by burning will never be more than a temporary success, because there are so many ways for reinfection to occur. Drastic methods will lead to concealment of disease.

Discarded honey containers may cause an outbreak anywhere. Old stored combs may carry spores for years until used again to hive a stray swarm. The worst feature of burning up is that the beekeeper is still in the dark as regards the diagnosis or proper treatment, and so the spread is rapid in proportion.

Strawberry Hill, B. C.

Tests of Drifting Show Color Preference and Extent of Movement

By Annie D. Betts

THAT drifting takes place to a far greater extent than is generally realized is shown by the experiments made in 1927 at the school of beekeeping at Preetz, Schleswig-Holstein, Germany, and reported by the director, Herr Otto, at the 1928 **Wanderversammlung** at Cologne.

During the two days preceding the migration to the rape seed blossom (an important spring nectar source in many parts of Germany), about two thousand bees of one colony were marked with red paint. On arrival at the rape fields, the hives were set out in a single long row, in a spot protected from wind. The hive containing the marked bees was nearly in the middle of the row; it was painted yellow. Observation of the bees entering the hives showed that bees drifted all along the row in both directions, though the number grew less as the ends of the row were approached. The end of the row which was between the marked bees' hive and the field received more drifters than the other. The bees showed a preference for yellow hives, and also preferred blue to red. Hives with red entrances lost bees to the others, and one of the colonies in a red hive fell victim to a fungus disease (**Aspergillus flavus**), which subsequently attacked other neighboring stocks. It appeared plain that the fungus had been spread by the drifting bees.

On migration to the clover in July, about four thousand bees were marked, belonging respectively to a modern hive and a straw skep, different colors being used for the two colonies. Drifting again took place; it was found that bees from the hive drifted to other hives, but not to skeps, while the skep bees scarcely drifted at all. This may have been due to the fact that the forage was situated on the modern hives' side of the apiary (the hives and skeps being set out in two lines, making an obtuse angle with each other, each sort of hive by itself). Here again, as soon as a good flow set in, bees drifted all over the modern side of the apiary.

At the heather, in August, further experiments showed that bees drift specially into hives of the same shape and color as their own; that they have a preference for yellow (the marked hive here was **brown**), and dislike red. Newly established swarms that had to be fed received numbers of drifters, on account of the energetic exercising of young bees in front of such hives attracting strangers.

Observations made in the home apiary confirmed the bees' absolute preference for yellow, and showed that they dislike both white and red. Hives with red, and especially with brilliantly white entrances, grew weaker, while those with black and dark blue entrances prospered. Pink and pale blue were also unattractive colors. An amusing instance of the bees' liking for yellow was observed at one of the courses for beekeepers held at the school. One pupil wore a yellow overall, and he always had a large number of bees sitting on him, while those in white garments had scarcely any.

The conclusions are drawn that:

There is a great deal of drifting at any time when the bees have to mark their homes afresh (migratory apiary, first flights in spring), or when feeding is in progress. The drifting is greatest on the side of the apiary next the bee-forage crop. Bees in frame hives set up close together drift much more than do bees in skeps. Strong colonies attract many bees to themselves. Bees prefer yellow or dark colors; white and red are to be avoided in painting hives. The migratory beekeeper should keep at least three hundred yards away from other men's apiaries in setting out his stocks, and he should be cautious in concluding that a queen is a specially good one because her colony has grown quickly stronger — this may be due to drifting.

Toads Do Eat Bees

By Leon Johnson

In the November issue of the American Bee Journal, Mr. Hofmaster in his article, "The Friendless Skunk," seemed to be in doubt about toads eating bees. It is a fact that toads do eat bees. I have seen them at it many times. However, I do not believe they do any real serious damage, unless the hive is already weak in number of bees. On hot summer nights when lots of the bees are lying out is when the toads do the most damage here. Several nights (right after supper) I have taken a flashlight out to the apiary and observed the toads eating bees. There is a good sized fish pond within about a hundred yards of my bee yard, where the toads are raised in large numbers. I think that is probably one reason why so many of them stay about my bees.

I had one hive of black bees right flat on the ground, and one day as I was passing I noticed a toad squatted in front of this hive. Just through curiosity I stopped to see if a bee would try to sting him. He had a nice little bed wallowed out in the sand about four or five inches in front of the hive. This hive being rather weak, there were but few field bees flying in and out. Just imagine my surprise when I saw, instead of the bees even noticing him, the toad catching nearly every bee that started to enter the hive. The little rascal would just raise up, just a little, and quicker than you could pop your finger his tongue would dart out and the bee would be missing. After watching him for two or three minutes I killed him. On examining the stomach I found about a good tablespoonful of freshly caught bees.

Yes, sir, toads will eat bees!

North Carolina.

Incorporated

Articles of incorporation were filed by the Colorado Farmers' Honey Producers' Association, Englewood, Colorado. H. S. Paddock, L. E. Dayton, O. F. Petsch. The capitalization is $50,000. J. B. Dillon.

Honey is the big word on the wrapper of the Carnation white loaf of the Rainier Baking Company.

Raising Kehn With Honey

By Natt Noyes Dodge

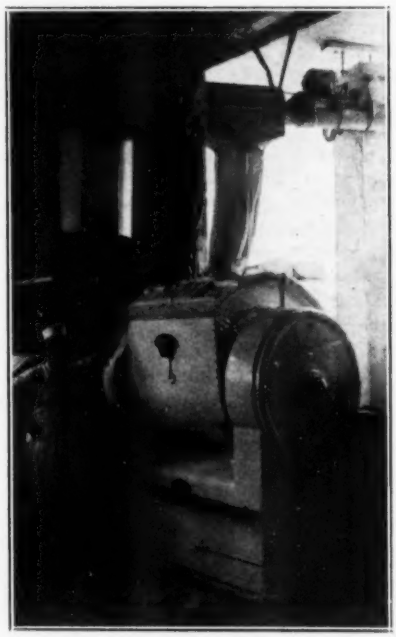
WHEN Max Kehn set up his small bake oven and bread mixer in Seattle more than fifteen years ago, he was not even remotely interested in honey. Today he is a keener judge of the product of the hive than the majority of beekeepers, for he has spent four years experimenting with honey as the sweetening constituent of bread.

"The future of quality bread rests in honey," Mr. Kehn emphatically states, "and because I know this to be true, I have recently spent more than $5,000 for a new mixer of improved design and of much greater capacity, have had new wrappers made with the word 'honey' printed in even larger letters than the word 'bread,' and have drawn away from the use of any sweetener other than honey in making my mix."

The Rainier Baking Company, of which Mr. Kehn is the proprietor, is located in an unimposing, brick building in the outskirts of Seattle's business district. The lower story is devoted to a storeroom and the large, neatly arranged room in which is stationed the big, automatic, self-feeding mixer and the trays and tables for the rising loaves. One end of this room is taken up by the cave-like ovens. On the second floor are the offices, for Mr. Kehn is a business man as well as a baker.

"Competition in the baking trade," asserts Mr. Kehn, "is becoming keener, and there is only one way in which I can increase my business and my returns, and that is by giving the people a better loaf. I am always planning, improving, and working for better quality in my bread. For years I have used the greatest care in selecting the flours which I use in my blend; I have purchased only high quality milk, and I have been experimenting with honey. I have learned that honey is just as important a constituent of a quality loaf as the flours, the milk, the salt, have been using honey in my dark and the mixing. For a long time I breads, but now I have at last succeeded in developing a formula for making white bread with honey. I am getting away from other sweeteners altogether."

Here is a story of success with honey in bread. The business is making real returns to the owner. We think so much of the possibilities that we offer to furnish reprints of the article, in quantity, suitable to give to those who may be interested, to any reader who will write for them before our next issue.



This modern automatic mixer turns out 800 pounds of Honey-made bread dough in six minutes.

According to Mr. Kehn, bread made with honey has several advantages over that in which any other sweetener is used. In the first place, the dough is more easily prepared, for the honey is already in solution, so that with his new mixer he can turn out an 800-pound batch of dough in six minutes. Because of its viscosity, honey aids in the rising of the bread, preventing the formation of large pockets of gas, thereby producing a finer texture in the finished loaf. Finally, bread made with honey has a nut-like flavor unknown in other bread, will remain soft and moist longer, which is an advantage both to the grocer and the housewife, and makes a far superior toast, for toasting does not dry out the bread, leaving a hard, brittle slice, as is so often the case when other sweeteners are used.

"Yes," said Mr. Kehn in answer to a question, "many other bakers use honey in their bread, for more and more of them are realizing the importance of honey in raising the quality of their loaf, but most of them make a bad mistake—they buy a cheap honey, what they call "bakery honey." There is a great difference in honey. I can tell the minute I open the oven door, for the aroma fills the room with a sweet, nut-like smell if I have used a fine, heavy, high-quality honey, but if I use a cheap bakery honey there is no aroma, and the flavor of the bread is lacking too. No honey is too good for us; we get the finest that we can buy. For our white bread, we use

a white honey, one as nearly colorless as we can get, but one with a distinct flavor. I prefer the sweet clover honey, as it is white, but has a pronounced flavor. For our dark bread we use a light amber honey, but one of heavy body and very noticeable, but pleasant, flavor. We purchase only the highest quality table honey for our purpose. In baking, some of the flavor and aroma is lost, so the more the honey originally carries, the more will remain after baking. Cheap honeys are often watery, dark, and of a strong, unpleasant flavor, and, strange to say, the baking seems to drive off all of the desirable properties that they may have had. Some bakers use invert sugar, but it is just sweet. It has no flavor in the first place, so it can impart none to the bread. A superior loaf cannot be made with invert, or with inferior honey."

In the spring of 1929, Mr. Kehn perfected his process of making white bread with honey. Staking everything upon his belief that the use of the finest honey as the sweetening constituent of his bread would build the future of his business, he purchased the modern mixer, added another truck to his delivery fleet, had new bread wrappers printed, and set about telling the people of the healthful qualities of honey and of bread made with honey. On each of his trucks he placed a sign which proclaimed in large letters, "A New Creation. Carnation HONEY-MADE Bread. A $5,000 Loaf." He made thousands of small, sample loaves, which he gave away, each one having within the wrapper a leaflet telling of the health values of honey and of honey-made bread. He induced one of the honey companies of the city from which he purchased his honey to cooperate with him in window displays, and in the grocery division of one of the largest department stores, and also in one of the big 5 and 10 cent stores, he offered a free loaf of bread with every jar of honey purchased, with the result that upon two occasions his smaller oven, in which he baked the sample loaves, was taxed beyond its capacity.

Mr. Kehn knows every detail of the business. Here he is seen standing beside one of his trucks, just as he stepped from the bakery

Thousands of small, sample loaves of Honey-made bread were given away with honey purchases.

"We would have been able to keep up with the demand for samples," apologized Mr. Kehn, "but we were so rushed baking the large loaves to keep up with the increase in our business that we were unable to give the proper attention to the samples. In less than five months our business has doubled. Not only have we increased the number of stores handling our goods, but the regular customers are using much more of our bread, because the people are specifying honey-made bread. What pleases me more, however, is the fact that we have no more 'come-backs' than previously. We make it a policy to pick up any of our bread that has stood in the store, for we want the people to have only the fresh product, and yet, regardless of the increased number of loaves left at each store, there are no more 'come-backs' than formerly.

"People like our bread; the increase in business proves that," said Mr. Kehn. "A year ago we were losing business because one of our competitors was doing a lot of advertising, both in the newspapers and by means of billboards. Now our business is coming back stronger than ever. It is all because we are giving the people our best, we are selling them health, not merely bread, but a bone and body builder. Honey alone has done this for us, it has made of our business a big success; I feel more elated every day; you might say 'raising Kehn with honey'—yes?"

The Rainier delivery cars are familiar all over Seattle and surrounding country. This shows how the $5,000 loaf, made with honey, was advertised

Some Honey Figures

Beekeepers in the vicinity of Rocky Ford, Colorado, say that the volume of honey so far this year far exceeds that of last season, and that the prices are better. This is indeed comforting. J. B. Dillon.

Hints on Queen Introduction

By Jay Smith

FOR safe and sure introduction of queens, a number of things are important. The queen should be on the comb in order to more readily take the odor of the colony, and being on the comb permits her to lay eggs. This is also very important, for a laying queen will be accepted much more readily than one that is not laying. I believe this is due to the fact that when a queen is heavy with eggs she is not so nervous and does not become frightened when released among the bees. For this purpose a cage that can be pressed into the comb is ideal, but as the Push-In cage has been described I will not dwell upon it here, but rather take up points which go to make queen introduction more certain when the common mailing cage is used

Most queens today are introduced in the mailing cage in which they are shipped. The bees eat out the queen in two or three days and accept some and kill some, the proportion depending upon the condition of the honeyflow and the temper of the bees. I have frequently stated that the common mailing cage used in that manner is about the poorest method of queen introduction that can be imagined. The worst feature about it is the uncertainty of the time it takes the bees to eat out the queen. Sometimes the queen will be out in twenty-four hours, and sometimes she will be found in the cage after five days.

When one wishes to use the mailing cage, I always recommend that something be tacked over the candy for three days, so the bees cannot get to it. It is then removed and the bees allowed to eat out the queen. In my experiments, I find it necessary to leave the queen in the cage five days for best results. In this length of time the bees become thoroughly acquainted with her, and if the colony is in the right condition, having no virgin or other queen, and if they have not been without brood too long, a very high percentage of acceptance may be expected.

But the mailing cage as commonly used has many disadvantages. Some queens will be lost by becoming stuck in the candy in case there is moisture in the hive. The candy absorbs the moisture and becomes sticky, thus causing the queen to get "mired down." Doolittle states that all attendant bees should be removed, as these cause the bees to kill the queen. In the past, I believed that these bees made no difference, but later experiments prove to my satisfaction that Doolittle was right. Frequently after the queen has been released I have seen several balls of bees, and I have examined these, thinking the bees were balling the queen. But each ball contained one of the attendant bees. Sometimes also the queen will be balled. These bees and the queen seem to constitute a little colony of their own and there seems to be a certain amount of enmity between them and the colony, which results in the loss of the queen when she is released. When these bees are removed the queen is adopted much sooner. Therefore, it is a good plan to have neither attendant bees nor candy in the introduction cage.

There is a much more important reason for having no candy in the introducing cage than because it is apt to daub the queen. I have found that the bees will accept the queen much more readily when she is introduced in a cage containing no food whatever. Some will ask if the queen will not starve if placed in a cage among the bees that are hostile toward her. No, she will not starve, for the bees feed her as often as she needs it. It is a curious fact, but nevertheless true, that although the bees will ball the cage trying to kill the queen, they will at the same time feed her. I have introduced many queens in cages containing no food and am yet to lose one by starvation.

Bees seem to have a colony habit of feeding any bee that asks for food, and I doubt if they know whether it is friend or foe they are feeding. When a bee is hungry it stretches out its tongue and another bee holds out a drop of honey with its mandibles and tongue for the hungry bee to take. Therefore, when the queen gets hungry, she runs her tongue through the wire meshes of the cages, calling for food, and the bees, through force of habit or the kindness of their hearts, no matter which, heed her call and supply her with food. A queen is much more readily accepted in the foodless cage, I feel certain, and, paradoxical as it may seem, I believe she is better fed. She becomes large and plump, indicating she is well fed.

After the queen has been in the hive five days, I take off the tin over the end of the cage and let her out. She wanders around among the bees and they pay no attention to her. When this is the case, you may rest assured that she is accepted. If the bees seem to notice her presence, and if a bee jumps on her back, she should be caged for two more days. But when this is the case a careful examination should be made to see if there is not another queen in the colony. No matter if you did take one out, the bees may have been superseding their queen and there may be another laying queen or virgin.

Then a queenless colony has an uncanny way of just picking up a virgin apparently from nowhere. I have found virgins in colonies where there were no queen-cells and where I had on queen excluders and everything. Where they came from and how they get in is a mystery. As an instance to show what might happen to a queen while being introduced, I will give a case that happened a year ago. I ordered three Carniolan breeders from Jan Strgar, in Carniola, sending the order through the Department of Agriculture, Washington. The three queens were sent by train to the coast, then by boat to New York, then by train to Washington, where the queens were put in common mailing cages with strange bees. This is done to prevent introducing the Isle of Wight disease into this country. The queens were then sent by train to Vincennes.

After going through such an ordeal, and all three arriving in fine shape, I proposed to exercise the greatest care in introduction. I used the Push-In cage, and two of them I introduced to regular colonies, removing the laying queens at the time of putting in the Carniolans. I also examined minutely to see there were no supersedure queens in the hives. All went well with both and they were accepted in due time. However, before they were liberated a careful examination was again made to see that no virgin had gotten in. Queen-cells were present as usual, but I would not be fooled by that, as I had been in the past where a virgin had gotten in and had not had time to get to the queen-cells.

But it is the third queen I wish to speak of. There was a colony to which I had given a ripe cell, and it had a virgin. I find such a colony readily accepts a queen when the virgin is removed, for the larvæ are too old for them to rear a queen and there is sure to be no cells present. As this virgin was of good stock, I placed her with some of her bees in a mating hive and shut them in for two days.

When it came time to release the Carniolan from the Push-In cage I made the usual examination for stray queens, when, lo and behold, there were eggs in three combs! I thought what a dirty shame it would have been to let that Carniolan queen get killed after all she had been through. From the looks of the laying queen, I guessed she was the one I had removed to the mating hive. I went to it and it was queenless. I took the laying queen out and dropped her

back into the mating hive, where the bees paid no attention to her, and in fifteen minutes I found eggs in the combs, showing plainly she was the queen that belonged there. She had been flying from her former hive and when she went out to mate from the mating hive she returned to her former home.

I clipped her wings, saying to her, "Now, old girl, if you get back home you gotta walk." The Carniolan was kept in the cage two days longer so that the bees would forget their former queen when she was released and accepted. The three queens all wintered and I still have them and feel a special interest in them for what they have gone through.

The Push-In cage is not suitable for use on new combs, and in such cases it is well to have some old mailing cages on hand. When getting queens through the mail, the queens are transferred to these cages containing no food, and no attendant bees are allowed in the cage.

Some have said it is bad practice to disturb the colony containing a newly introduced queen and that she should be released automatically when the bees are quiet. My experience does not bear this out, and when releasing the queen I smoke the bees well, and when the queen is released she has time to gain her composure and feels at home by the time the bees get over the effects of the smoke. I usually give the colony a feed of syrup when the queen is released. When the above program is followed, it is seldom a queen will be lost.

Compulsory Marketing in Australia

In regard to your editorial on compulsion in marketing, it may be of interest to you to know that we have twelve of these boards in Queensland, which marketed £14,000,000 worth of produce in 1927. One product will do for an example:

Before the compulsory marketing board came into existence, pineapples were often unsalable. Now the board sells the whole crop at an advance over the best prices previously received. The ballots for continuance of the board are a majority in favor up to 91 per cent. This scheme is of interest to you as well as to us if one forgets local prejudices and regards it as a social experiment. I do not predict the end, but the other states in Australia are now copying Queensland in this matter. Personally, I think with Henry Ford that "farm troubles are farm troubles," but eventually some market control seems the only sane method.

John W. Rosser,
Australia.

The Antiquity of Beekeeping

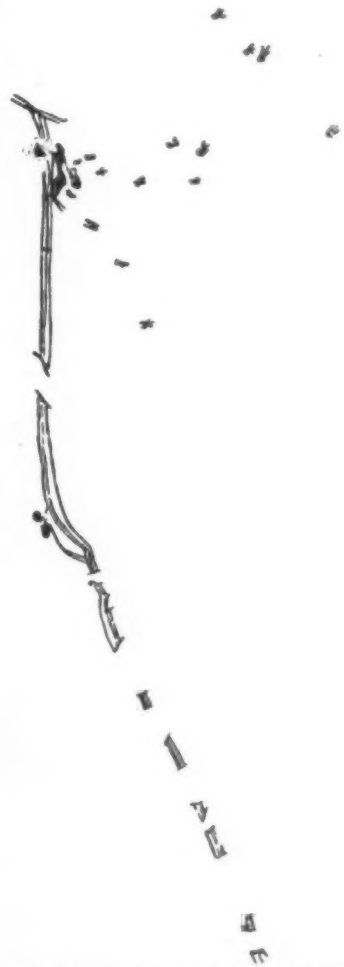
By Jose Chocomeli

WHOEVER observes the geographical conditions of Spain, limited in great part by its coasts, furrowed by numerous rivers, with a surface so mountainous that Switzerland alone equals it on this point, one will easily understand the abundance and variety of the flora which it enjoys. Its wealth in nectar and its climate so suitable to beekeeping give it second place in the list of successful honey producing countries of Europe, and this in spite of the fact that it is still using hives with immovable combs, mostly.

A paleolithic painting remaining after two thousand years, in the home of prehistoric man, at Bicorp, Valencia, Spain.

But in past centuries the splendor of the beekeeping industry was extraordinary in Spain. Not wishing to quote the famous laws of Alphonso the Sage nor the ancient code "Fuero Juzgo," nor even the powerful brotherhoods that existed in the country, it will be sufficient to recall, as a detail showing its importance, the prestige acquired by its honeys of thyme and rosemary, known under the names of Alcarria honey and Aragon honey, in the same way as in France the "miel du Gatinais," or in Greece the "honey of Hymettus." At the present time the honey harvested in the orange orchards, which has taken a considerable extension since the last half of the past century, constitutes a special product, well appreciated even beyond the frontiers.

But there is in Spain a unique antecedent, which not only bears witness to the antiquity of beekeeping, and consequently to its natural wealth in the country, but constitutes a treasure both for the history of art and that of beekeeping. I refer to the prehistoric paintings discovered in the "Grotto de la Arana" (grotto of the spider), at Bicorp, in the province of Valencia, which display bee hunters of the paleolithic age.



The gathering of honey drawn by primative man in dark ochre on the walls of the grotto, "La Arana," at Bicorp.

The cuts which accompany this article will do better than a detailed written description.

Let us call attention to a curious detail. The hole in the rock, shown opposite the man who appears to be going down with a leather sack full of honey, is similar to many holes at present still inhabited by bees and from which the present inhabitants of the country secure honey in the same manner as represented by the former inhabitants of thousands of years ago.

As to the insects shown in the engravings, I do not believe that it was possible to represent better in a simple manner the honeybees at the moment when they are about to alight at their entrance. We believe that these examples of bee hunter paintings are unique in the world, and we propose to request the protection of the state for them.

Spain.

Lives of Famous Beekeepers

By Kent L. Pellett

SAMUEL WAGNER

A. I. ROOT published the "beekeepers' medley." This ebullient little man always was afoot with something novel; now he published on a large mounting the faces of beekeepers he considered worthy of note, arranging them according to his own lights, a hundred of the great and near-great, a medley of the faces which had become distinct from the mass of their fellows.

The portraits of the best known of his day were there: Quinby, Newman, Grimm, Langstroth, Hetherington, the Dadants, Cook, Doolittle, and others. One face, however, was missing, one who had stayed in the background, aloof from the pushing throng who were casting American beekeeping, yet vitally a part of them—the face of Samuel Wagner, the first editor of the American Bee Journal.

Aloof he may have been, and reserved, yet the old German's cool pen had guided his brothers clear of rocks the first years of American beekeeping, and his portrait should not have been left out of the medley.

But Root could find nowhere a portrait of him. Friends told him that Wagner had shrunk from the eye of the camera, had never allowed his likeness to be taken. Root turned to Father Langstroth. He and Wagner had been good friends; perhaps he could find a way out of the difficulty.

Langstroth knew of no photograph of Wagner, but he did know of a man who was Wagner's counterpart. Their best friends often had confused the two when Wagner had been living. This man's picture he sent to Root, who included it in the gallery. Thus by proxy Editor Wagner was placed among the lights of beekeeperdom.

Samuel Wagner was born two years before the break of the nineteenth century. His father was pastor of the German Reformed Church at York, Pennsylvania, and Sam was ten years old before he began to learn the English language. But he made good use of the years spent at the parochial school and at the York County Academy, and at twenty-six he was able to buy the York Recorder and begin his career as an editor.

But, in the course of a few years, for reasons which his biographers have failed to tell—chroniclers are forever overlooking the vital points of a man's life story, in their zeal to record the places where he lived and the years he lived there—Wagner forsook journalism and became cashier of a York bank. This position he held until his later sixties, when he became for five years the disbursing officer of the Senate.

His hobby was bees. Believing that there were enough beekeepers in the United States to support an apicultural magazine, in 1861 he began the publication of a plain little sheet which he called "The American Bee Journal." But bee men, scattered and not yet inured to the rigors of book learning, supported very poorly the first American bee magazine. Then came the first claps of the Civil War. They grew louder, and Wagner discontinued the little paper.

But the war, which cut off the supply of southern sugar from the North, caused the price of sweets to rocket, and housewives demanded honey. Bees became a subject of more general interest, and after the war, at the request of his friends, Wagner again opened the columns of the American Bee Journal. This time the venture was a success and he continued to edit the magazine until his death, six years later.

These were the outward milestones in the life of Samuel Wagner: editor of a country newspaper, cashier of a bank, disburser of the Senate, editor of a small bee magazine—prosaic, no doubt; and but a few of his closer friends knew the richness of his inner milestones and the extent and variety of his knowledge, half-hid by a reticent personality.

He was well acquainted with American history, with the history of his church; when he had become interested in bees, he had taken care to learn as much of beekeeping literature and history, and acquired the best library of German beekeeping literature then in America. He subscribed for the Nordlinger Bienenzeitung, the German bee magazine, with the first issue, and kept a complete file of the magazine.

During the late 1840's a fracas was raised in the pages of the Bienenzeitung. Dzierzon had advanced his theory of parthenogenesis and was engaged in controversy with the naturalists and theorists of various sorts whose pet hypotheses he had upset. Wagner followed the stubborn battlings of the German cure with interest, and ordered his book, "The Theory and Practice of Bee Culture." He perused it carefully and was soon convinced that Dzierzon's system of movable comb beekeeping was better than the box-hive beekeeping practiced in America. He decided to translate the book into English, and in this way to spread the advanced Dzierzon methods among the American farmers

Several months were spent in translation, and when the manuscript was completed he loaned it to Reverend Berg, of Philadelphia, another beekeeping devotee. Berg was impressed and urged Wagner to publish the manuscript at once.

Berg was not acquainted with German beekeeping, but he read desultory contributions by Americans in the farm magazine. He found interesting the writings of a certain Reverend Langstroth, who displayed a knowledge and an understanding of bee behavior beyond the ordinary. Berg decided to visit him in his West Philadelphia home.

Berg found Langstroth in his apiary, and was surprised, for he was using a bar hive, and seemed acquainted with many of the practices of Dzierzon, although he never had heard of the cure. He had worked out a system of beekeeping more perfect than any Berg had believed to exist in America. Berg told Langstroth of Wagner and the Dzierzon book which he had translated, which he sent to Langstroth upon reaching home.

Langstroth was soon writing to Samuel Wagner and telling him of his amazement that another had preceded him in discoveries he had thought his own. Yet, he believed his hive had points of superiority. He invited Wagner to come and see him. Wagner found the Philadelphia clergyman a charming correspondent and decided to accept his invitation.

Langstroth was not at home when Wagner arrived; but in his absence Wagner explored the apiary thoroughly, opening and examining the clergyman's peculiar hives. Now it was Wagner who was amazed. Here were put in practice principles of the book he had taken months to translate. Here were the movable combs that Dzierzon advocated. But the details of operation were different and the hives of the two masters did not at all resemble each other in appearance. Wagner admitted to himself as he glanced through the hives and handled the combs that here was a perfection and

simplicity that Dzierzon himself had not attained.

As he went home he looked into the future of American beekeeping. He had dreamed of becoming the benefactor of American bee men, of helping them to better their practice by publishing the book of Dzierzon, but now he happily put that dream aside. Langstroth with his movable frames had gone beyond the German cure—he should be the prophet of the new beekeeping.

He urged Langstroth to write a text on beekeeping and publish his discovery to the world. It was what Langstroth had in mind, and within a few months he was in a fever of work preparing his manuscript. It was published, and Langstroth's system slowly captured America. Wagner tucked his manuscript away in a drawer, where it remained; and later, when the first translation of Dzierzon's "Theory and Practice of Bee Culture" was given to the American beekeepers, it was done by a hand other than that of Samuel Wagner.

Wagner and Langstroth became the best of friends, and together undertook several ventures. Wagner, becoming interested in the success of the Germans with the Italian bees, in 1856 had ordered some of the yellow bees shipped to him; but the mate on the boat had proved a hungry fellow and had stolen all the honey, leaving the bees to starve before they reached New York. Three years later Wagner and Langstroth, with a man named Colvin, made another attempt to import the Italians. But by that time others had seen their possibilities. Parsons was importing some stocks for the United States Government, and P. J. Mahan also was making the attempt. The three cargoes of bees all were on the same ship. There was haste as the ship docked. Who would have the honor of landing the first Italian bees on American soil? A hive belonging to Parsons was smashed as it was thrown to the dock. The captain of the boat walked ashore with one of the hives of Wagner, Langstroth, and Colvin, and proclaimed the bees the first Italians to reach America. The honor remained a mooted one. All parties claimed it.

Langstroth often wrote for the American Bee Journal. Where could have been found a better team for the establishment of the first American bee magazine than the inventor of movable frames and the scholarly old German, who, versed in the pages of the past, yet followed closely the developments that were treading on each other's heels in that turbulent day? The American Bee Journal, in those first years when Wagner's calm and restrained hand guided it, was a model of apicultural scholarship, of careful editing. Wagner barred from its columns the contentions and disputes that were for years to fill the pages of the later magazines.

His chief fault, perhaps, for representing the times, was that he was too much the scholar, restrained in a period when everybody was excited and when rural people had little time for the niceties of book learning, but loved nothing so much as a battle of wits or of words. Wagner held himself aloof. Other editors contended for special systems and punched the editorial noses of their rivals.

The old American Bee Journal may have been quiet and dignified in tone, but in its pages were chronicled the happenings of the most significant years of American beekeeping. There appeared the evidence for the Dzierzon theory of parthenogenesis, the first record of the sight of a mating of a queen and drone, and the story of the invention of the honey extractor, with a picture showing its construction. In its columns were printed the minutes of the first convention of American beekeepers, the record of the succesful propagation of the Italian bees in the United States, the story of the growing popularity of the Langstroth system.

In Wagner's last days, however, one severe controversy racked the Journal. When, after H. A. King had for years openly sold hives infringing on his patent, Langstroth brought suit against King, Wagner considered the case of so much importance that he opened his columns to all the evidence that might be offered by both parties. King went to Europe searching for proof that Langstroth was not the true inventor of the movable-frame hives, and came back with statements of leading Europeans which seemed to prove their priority as inventors.

Wagner printed King's evidence, with refuting statements by Langstroth. He also printed a letter from Charles Dadant. Dadant had worked with the movable-frame hives invented by the Europeans prior to the Langstroth hive, and he wrote that they were impractical compared to the Langstroth hive. Wagner sent the letter to be printed in the Journal, with a few words of his own appended. "King may begin to suspect," he wrote, "that his efforts at deception have not been quite as successful, in this instance, as he hoped they would."

He laid aside his pen. These words, the first harsh words he had written for the Journal, were also the last which ever appeared in print over his name, as a few mornings later he died suddenly.

It was a fortnight before King felt, through the American Bee Journal, the rebuke of Samuel Wagner.

New Zealand Expands Honey Exportations

The local press in New Zealand reports that the largest quantity of New Zealand honey graded at any one time in Dominion history, 240 tons, is at present awaiting shipment. Its destination is England. The whole of this consignment comes from the Auckland province of the North Island and is composed of pasture honey, largely from white clover.

Beekeeping and honey export is an industry which has expanded rapidly in recent years. During the 1928 season 2,306,065 pounds of honey, valued at $378,341, were exported. This is over twice the quantity exported during 1927, when 850,011 pounds, valued at $122,326, were sent abroad.

The United Kingdom is by far the best customer in New Zealand as far as honey is concerned Considerable advertising has already been done by New Zealand honey producers in the United Kingdom. — From American Honey Producer, August, 1929.

Bees Along the Apalachicola River

(Continued from page 494)

Morgan, to visit one of the Anthony Brothers' apiaries. A wilder spot would be hard to find. Alligators sun themselves along the shores, and fish eagles scream overhead, while their immense nests are to be seen in the tops of tall trees, difficult to reach. Not being easily accessible, the swamps have not been exploited as have our forests, and they furnish the last stand for many wild creatures not often found elsewhere in these days of repeating firearms and high-power explosives. The nature lover hears many strange sounds as he works among his bees, and there are always interesting birds or wild flowers just beyond his reach. It is a strange, wild country which will not soon be changed. Here is abundant bee pasture which is not easily overstocked. The difficulties of operation are such that men of limited experience are not likely to succeed, and the isolation is not attractive to the mass of men.

The man who knows the region and how to adapt his management to the needs of the area will get big crops of good honey, and the quality of tupelo honey is such as to insure prosperity to those who can produce it in quantity.

Doings in the Northwest

By N. N. Dodge

Marketing Specialist, Clay, Studies Production Conditions

During August, Mr. Harold J. Clay, marketing specialist of the Bureau of Agricultural Economics, U. S. Department of Agriculture, made an extended trip through the West and Northwest to study production conditions and the relation which they bear to honey market fluctuations. He paid particular attention to the methods employed by producers in handling the honey between the extractor and container because of complaints of overheated honey coming from German buyers.

He reported as many as twenty different types of heating equipment used by producers in preparing honey for straining, many of which, he states, raise the honey to a temperature injurious to the diastase content, thereby making it liable to classification by German inspectors as adulterated. Much of the honey reaching Germany from the United States comes from western producers through ports in California, Oregon, and Washington.

In past years considerable loss has been suffered by car lot honey shippers through breakage in transit. Proper methods of loading cars, as well as precautions to prevent shifting of cases, according to Mr. Clay, will do much to cut down future losses. He is now preparing material for a U. S. D. A. bulletin which will give instructions for the proper loading of honey in freight cars.

The railroads are also much interested in this matter, and have already taken steps, through the appointment of a committee, to make a study of the shipping problems of honey producers. Mr. Floyd J. Buck, a well known beekeeper and supply dealer of Walla Walla, Washington, is chairman of the honey committee and has done considerable investigational work relative to rail transportation of both comb and extracted honey.

Short Crop—Good Prices

Crop conditions in the Northwest are spotted this season. Low yields from California orange and sage, augmented by subnormal returns from the alfalfa and sweet clover of eastern Washington and eastern Oregon, according to reports from producers, will bring about a considerable shortage of honey in Pacific Coast states. Although producers in the fireweed regions of western Washington and Oregon have harvested the heaviest crop in three years, judging by reports now filtering through, this territory never produces sufficient honey to influence general Northwest conditions.

Montana has a short crop, so has Idaho. The Boise Valley surplus this season wa snot in excess of ten cars, as compared to thirty last year, according to Mr. A. W. B. Kjosness, manager of the Mountain States Honey Producers' Association.

Basing its action upon the general short crop in its territory, the association announced a price raise in its honey pools, effective September 3, and several of the largest commercial honey packers of the region who rely upon the association for honey have revised their prices to the trade in accordance. Northwest beekeepers anticipate the highest returns this season since 1925. Practically all of the 1928 crop has been cleaned up, which further strengthens this season's market.

During the weeks of August 26 to September 7, five carloads of new crop honey were exported through the port of Seattle to Germany and the United Kingdom.

Bears Raid in Logged-off Areas

Bears have been especially active in the logged-off areas of Washington this year. Townsend, of Montesano; Bonham, of Aberdeen; Joubert, of Enumclaw; Morgan and Brown, of North Bend, and Geisentanner, of Monroe, have suffered varying losses through the destruction of hives, combs, and honey by bears. One bear demolished sixteen colonies in one night in the apiary of W. H. Giezentanner. An appeal to the local game warden failed to bring aid, so the advice of Faulconer, the up-and-coming Snohomish county bee inspector, was sought. Faulconer, with the aid of dogs, trailed and killed the bear. Although he maintains that bear hunting is not classified among the duties of a bee inspector, Faulconer lets it be known that if anything goes wrong among the beekeepers in his county, he is going to make it his business to attend to it.

Five-Million-Pound Crop in Utah

According to D. H. Hillman, state inspector, Utah Beekeepers are due to produce about five million pounds of high grade honey this year. This crop is about normal for the state, although somewhat larger than for the past two years. The quality is better than usual. Extraction is now in full swing. G. P.

Locating an Apiary

Bee yards in open pastures where stock runs loose do not have to be fenced, provided all of the hives are in a long row and not more than twelve inches apart, with free getaway in all directions. Or place the entrances of the hives so close to a hedge fence that a cow cannot squeeze in between the hives and the hedge. This gives the very best protection to the front of the hives from the wind.

Locate the bees at least one city block or further from the farm house; give the farmer a definite amount of honey for rent and get it to him as soon as possible. One sixty-pound can is about right for a small yard of about fifty colonies. Do not brag about how much honey you get and how easy it is to make money with bees, or the farmer will raise the rent. Always take time for a few pleasant words with him or his family, but do not form the habit of visiting when you ought to be working. A. V. Small, Kansas.

(We have had an apiary in an open pasture, but did not like it even when the hives were close to the fence. We prefer to have them on the other side of the fence, where there is no danger of stock rubbing against a hive and causing the bees to become angry. We saw once four box-hives tipped over by calves and another time a blind horse killed by the bees because it did not get away soon enough after tipping a hive so as to arouse them. Keep the hives in a separate enclosure.—Editor.)

The New Zealand Honey Producer

This is a new magazine which issued its first number on the tenth of July. It is edited by Mr. W. B. Bray at Barry's Bay. Among its first articles is one on the earthquake which devastated a part of New Zealand and deprived some people of all they had. The little magazine reports:

"We are making enquiries as to the losses sustained by beekeepers in the area. We know of at least one case where a beekeeper past the prime of life will have to make a fresh start from nothing, and there may be others."

The magazine urges organized marketing of honey, saying that "individual selling of honey has proved a failure."

The only magazine representing New Zealand beekeeping lately has been the "New Zealand Smallholder."

We wish the new magazine and the New Zealand beekeepers good success.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

DOES BLASTING HURT BEES?

The state is changing the road by our place and they will have to blow out some trees within one hundred feet of the nearest hive of bees. Will it hurt them, and is there any way to protect them without moving? WISCONSIN.

Answer.—I have no experience whatever about blasting near hives of bees, but I believe that the jar will not have any effect except to annoy the bees at the time and perhaps make them cross. Of course, if the blasts were strong enough to move the hives or tip them, it might kill the brood.

Otherwise, I don't think you need to worry about it, unless the blasting is done in cold weather, when it might disturb the nest.

BEE STINGS AND RHEUMATISM

1. I am a new bee enthusiast. I am keeping bees for honey and rheumatism. I want to know if the stings will answer as well applied to any part of the body for rheumatism as on the affected part?

2. I want to know also if the bee dies after the sting.

3. Is there any way of telling when the honey is poisonous and dangerous to eat?

4. I have a patent hive and want to know how to place queen to start raising me some real bees. A queen would be no good without some bees along with her, would she? NORTH CAROLINA.

Answer.—1. I do not believe it matters where the sting is applied, to cure rheumatism, although it might be better to apply it to the spot where the rheumatism is located. But the poison runs into the blood and is sure to have some effect. I must say, however, that some kinds of rheumatism are not affected by bee stings. It is where the cause is due to extraordinary conditions. For instance, I was cured of rheumatism in the back, or what they call sciatica, by quitting the use of beef and pork in my meals.

2. The bee sometimes dies after losing her sting, if she has left the sting in the wound and has lost part of her bowels in trying to pull it out. But with a very light sting that does not loosen any of her intestine, she can live and sting again.

3. We do not know of any poisonous honey. There may be some in your section, but I doubt it. The worst thing you have is the bitter weed, and its honey is very bitter, so I am told.

4. A queen will do no good by herself. You must buy a couple pounds of bees with the queen if you wish to stock a hive.

FEEDING TO PREVENT GRANULATION

Will you please answer in the September number what is the best way to fix sugar syrup for bees to winter on so it will not granulate in the comb? I sold my bees when we moved to town, but reserved four stands for honey for our children's use, and from these four stands we extracted 580 pounds of white clover honey this season. At least one first swarm left, as I was not there to hive them. Our tenant gets one-third the honey for helping extract and keeping the bees on the farm. I had bees for fifty-two years, or ever since I was 21 years old. I always fed back honey in the fall when I found after weighing each stand, after extracting was done, and if any were short of stores to winter on. ILLINOIS.

Answer.—Sugar syrup for winter feed may be made, two pounds of sugar for each pound of water and about 10 per cent of good honey added. If it is fed not too fast, so the bees have time to invert it, there will be no granulation.

But, judging from what you report, I would think that it would pay you to feed them honey altogether, especially if that honey is nice honey from the clover crop. You are certainly doing very well with your bees.

SEX AND CELL SIZE

On page 417 of the Journal, Orison Smith claims that the size of the cell determines the sex of the bee. I have often placed good, dark worker-combs, with no drone-cell, in a brood chamber and have found that drones will be raised even though they have to be raised in worker-cells. The cells appear to be unaltered, although the cappings may be widened. ONTARIO.

Answer.—Old queens whose spermatheca is becoming empty and young queens that are just beginning to lay sometimes lay drone eggs in worker-cells. But vigorous queens in normal conditions never lay eggs that will produce drones, in worker cells, even if the hive is almost entirely deprived of drone-cells.

FALL TREATMENT OF DISEASE

I have sixty-five hives of bees that have foulbrood; not bad; some combs look good. Is there any way that I could check this, this fall? In what way would you handle it? PENNSYLVANIA.

Answer.—Foulbrood is handled best at the beginning of the honey crop, by transferring the bees to new hives and either rendering up the combs or burning them up. In any case we would recommend that you burn up all the combs containing foulbrood. But you must remember that foulbrood is transmitted in the honey, so that the honey of a foulbroody colony is most likely to pass the disease to colonies that do not have it, if they feed upon any of it.

Some people destroy by fire all the diseased colonies. But if one goes at it very carefully, one can overcome it.

Mr. C. N. Green, of Harrisburg, is your state inspector. If you will write him, he will either come himself or send you a deputy. The bees may yet be treated this fall if you have any honey crop at all. But they will have to be fed for winter. It is important that robbing should not take place, as all the robbers may carry the disease to their homes.

Your bees will need to be watched very closely for a year or two after being treated.

EVAPORATION OF WATER IN SYRUP

1. How long does it take for the bees to evaporate sugar water made of one part water and two parts sugar, by volume, to the right thickness for winter use?

2. I want to unite three colonies to make one good one, and not wanting to fill all the frames, twenty-five in all, with sugar syrup, can I take them away before they are all capped over, or should I feed until they are capped? WEST VIRGINIA.

Answer.—1. The time that it will take to evaporate syrup to the right thickness depends upon several things, the strength of the colony, the temperature, the moisture in the atmosphere, just as it will take more or less time to dry the wash when it is put on the line, depending on similar causes. Usually, however, in a week or two the syrup is sufficiently thick to be safe for winter food.

2. At this time of the year it is quite likely that some of the syrup will not be capped at all, though most of it should be. If I were to unite three colonies, I would feed two of them, the smallest, only enough to make them temporarily comfortable, and give all the feed necessary to the strongest one, then unite them. In this way you would need less feed and you would have less trouble in uniting.

HEAVY CLUSTERING IN FALL

What shall I do with my bees, the honey-flow being about over? If I take all the supers off they cluster outside, no matter how cold it is. It seems they have so much honey in the hive body there can't be room for them. NORTH DAKOTA.

Answer.—I have never yet seen a hive of bees too crowded for its bees, when cold weather comes. But in such a case, if you are sure that they have an ample amount of honey for winter and spring use, in the brood chamber, I would simply put an empty super at the bottom, for the bees to cluster in. This will be much better than an empty super above, in which they might congregate and be unable to leave in very cold weather. The bees at the bottom will be sure to cilmb up into the brood chamber when in need of food.

If there is not an ample supply for winter in the brood chamber, then leave on one of the supers, if it is not a section super, for sections are hardly suitable to contain a food supply. That is why bees dislike to occupy sections, when they can get into full combs.

DETAILS OF BEE CELLAR

1. I am building a bee cellar 14x10 feet, 9 feet deep in center and 6 on sides, with door in south end.

Will it be all right to screen door and let bees fly in cellar when they like? I have a friend who has had a hive in his house cellar two winters, and he has a small window on east side of cellar. He leaves his hive entrance open full width of hive, and bees come out at will. He loses some, of course, but they have come through O. K. and use less honey than any I have heard of. His cellar has fruit and vegetables and everything usually found in farm cellars.

2. Will good honey boiled and cane sugar stirred in make a better feed than sugar syrup to feed light colonies?

3. Last spring when getting package bees I tried different ways to feed, and had best success by using boiled honey and sugar spread on corrugated pasteboard, and put sugar side down over the frames. Do you think that would work in winter if the hives could be kept at temperature of 50? I have ten hives, some with choice queens, and want to care for them in the best possible way. SOUTH DAKOTA.

Answer.—1. It may do to have a cellar window open and let the bees fly on warm days, when you have but one colony in the cellar, for there is no danger of their getting mixed, except perhaps the danger of their trying to return to the old summer stand. But if you have ten hives, more or less, to put into a cellar, it will surely be better to keep them confined, by maintaining the temperature of the cellar to a point where there will be no desire for the bees to take flight. They will use up more honey if they are given an opportunity of flying out on warm days than if they are kept

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perfectly quiet and dark, with the proper temperature of less than 50 degrees.

2. You may use good honey heated to 160 degrees or about that, mixed with sugar syrup or perhaps with sugar stirred in. But this is no better than properly made sugar syrup, for wintering the bees. In spring, honey is best, as the bees need the different ingredients contained in honey for breeding. I would prefer never to heat honey for feeding, however, except enough to melt it if granulated.

3. Your way of feeding package bees in spring is good, but it must require more labor than feeding them with a regular feeder.

EXTRACTING UNSEALED HONEY

My bees haven't gathered honey for over two weeks, now, but there is a great deal of unsealed honey on the hives. If I extract this honey in about a week, will it keep? WISCONSIN.

Answer.—If your colonies are strong, it is most likely that they have the honey pretty well ripened after two weeks in the hive. The reason why they do not seal it is that the crop came to an end and they do not feel disposed to consume so much honey to produce the wax needed for cappings. Usually, it is produced naturally in their wax organs while the crop lasts.

I would not hesitate to extract the honey in question. In fact, it must be extracted, as there is a chance that it may gather moisture during cold weather and become watery in that way.

WINTERING DISEASED COLONY

I have a colony of bees that have lately developed what I believe is American foulbrood. There has been a case of American foulbrood just across the road from my bees this summer. I would like to know if it would be safe to pack thim this winter and treat them the first thing in the spring. I could watch and, if they quit flying, shut up the entrance. I believe they would live through the winter, as they have a lot of young bees from a young queen introduced this fall, and they will soon stop raising brood in this locality. Would it be better to unite them with another colony, and if so, how would you advise to do it? KANSAS.

Answer.—First, make sure whether the bees really have American foulbrood, ropy dead brood in sealed cells, with a small opening made by the bees; color brown, odor of glue pot.

If it is American foulbrood and the colony is not strong, I would advise killing the bees with brimstone and treating both the combs and the hive. The best way to treat the hive is to singe it with the flame of a plumber's torch. Treat the combs by using Hutzelman's solution. If it is too much trouble, then burn them or boil them for at least a half hour. After that boiling, the wax will do to use. But be sure and don't leave anything exposed that has been inside of that hive.

If the colony is very strong (and I don't believe that it is), you might save it till next spring, but it is a rather risky business, for if it should get weak and some of the other bees should get into it, it would spread the disease.

FALL HONEY FOR WINTERING

I am coming to you with a question which has already been answered in part. In our section of Missouri we had no white clover, nor much sweet clover, this year. Some of us had to feed our bees in June and July. But in August and September they had a good deal of goldenrod and Spanish needle to work on; so most colonies have plenty of high grade, bright yellow honey to winter on.

Is it safe to let them start into winter with nothing but yellow honey to live on?
MISSOURI.

Answer.—Good, ripe fall honey, of goldenrod and Spanish needles and similar flowers, is all right to winter bees. The trouble is that, very often, fall honey is not well ripened and much of it left unsealed. In that case it is likely to draw moisture and become watery. I have seen instances where the moisture of the air made the honey run out of the cells.

If any of your honey is unripe, extract it, and replace it with sugar syrup in sufficient amount. But if it is well ripened and sealed, you need not be afraid, unless there is some fruit juice mixed in with it.

INBREEDING

I would be very glad if you could answer through your paper if there has been an actual case of a queen being impregnated by her own drone offspring. Under favorable conditions this might be possible, but I do not know if it is so, and therefore would be pleased to get your answer.

This is a great fruit-producing state and we export about three-fourths of the total apple export of Australia, and it runs into millions of cases; you use barrels during the season. The Bee Journal, so far as it deals with bees and fruit blooms, is therefore of great interest here.
AUSTRALIA.

Answer.—I have never heard of such a case, neither do I believe it possible, for all experiments show that a queen loses the desire to mate after she is four weeks old. Queens attempt to mate during the first three weeks of their life, but become drone layers if the fecundation is delayed beyond the twentieth day. Huber made numerous experiments upon this as upon many other points. If the queen were to be fertilized by her own son, she would have to begin laying eggs, which would be most probably after she was three weeks old. Then she would have to wait at least a month longer for the drones to emerge and become old enough to take flight. I consider this an impossibility, though it might happen in extraordinary instances, but all the rules of bee behavior would have to be broken.

MOVING TWENTY MILES

I have twelve hives of bees I want to move about twenty miles. I have a truck to move them with and I want you to tell me how I should do it.

These hives are very heavy. Should I lock them up tight in there, or screen them in so they can get air?
IOWA.

Answer.—If your colonies are very strong and heavy, it is best to use a screen such as shown in little booklet. Less air would do if the weather is very cold at the time of moving. At that time, perhaps a screen over the entrance, or one in the bottom board, would be sufficient. We have moved bees without giving them any other space for air than was afforded by nailing a slat over the entrance, but this was in cool spring weather, when the colonies were neither very strong nor very heavy.

You should not move bees so late that they may not have a flight after the moving, before very cold weather, as the disturbance is likely to excite them and make them consume considerable honey and they may be somewhat loaded with residues in their bowels.

If the roads are good and smooth, it will be much better for them than if they are rough, as they will be less annoyed and less excited.

MEETINGS AND EVENTS

Current association meetings and organization notices are published in this department each month. Secretaries and other officers of organizations who wish publicity here should make sure that notices are sent in before the fifteenth of the month preceding publication. Frequently notices are received too late for use and consequently do not appear at all.

Session of the International Apis Club Dahlem, Berlin

By Pere Baldens

The third session of the International Apis Club was held in Berlin under the presidency of Prof. Dr. Louis Armbruster, on the ninth, tenth, eleventh and twelfth of August, 1929. Two other sessions were held on the Continent, first in Paris in 1927, then in Geneva and Berne in 1928, under the able presidency of Dr. Otto Morgenthaler, the well known authority on bacteriological questions in Europe and effective worker on diseases at the Liebefeld station near Berne, Switzerland.

After the sessions of Paris, Geneva and Berne, many Germans were rather troubled whether the German authorities would be up to the times. Pity to say that not more representatives of foreign states were present to assist at this extraordinary congress, where the pick of learned men of all Europe were present. Professor Dr. Louis Armbruster, practical leader of the Institute fur Bienenkunde, at Berlin, worked with all his heart with the chief of the research department, Dr. Gerrietz, and the great success of the meetings is due to his energy and will to content his guests almost free of charges. Town and state also did their best to have the International Congress a great success.

Professor Armbruster secured addresses from able bee research workers all the world over, and financial assistance. He is an authority on beehives of all countries, and we may say ages, collecting hives from the most remote parts of Europe, of Asia and Africa. I had the honor and pleasure to accompany him on one of his trips through France, over a thousand miles from east to west and from southwest to northeast, on whcih occasion he bought hives of all dimensions for his "bee-garden."

His works in "Archiv fur Bienenkunde" are well known and the Apis Club was fortunate in its choice when Armbruster was elected president for 1929. It is fair to say that Dr. Armbruster is assisted in his work by many able volunteers and a pleiade of enthusiastic youngsters, eager to enrich bee lore and science with new items of great interest. To cite only a few, we have Dr. Roesch and his able wife, Mrs. Dr. Roesch-Berger, who showed the assembly an observation hive illustrating the studies of Drs. von Frisch and Leuenberger on the intelligence of bees. Everyone present could observe the marked workers announce to the hive, at a given hour, that syrup plates were ready for them, back of the house, and inviting other workers by a peculiar bee dance to join them in the feast, which everyone could equally follow.

Miss Dr. T. Delmy, another worker, displayed a unique slow movie picture showing how bees collect pollen, put the grains in the pollen baskets, strip themselves of pollen, etc. In the laboratory, Miss Kaferstein showed us the prepared fossil bees which Dr. Armbruster obtained from a Miocene formation dating at least a million years back, and Dr. Hans Bischoff, director of the Berlin Natural History Museum, showed bees in amber of more remote periods. These collections illustrate clearly how slowly evolution goes on, for the specimens had only a slight difference in the wing structure and the pollen-basket collectors of the hind legs, indicating a most close resemblance to "Apis indica," already social bees. (This particularly interested me, as I pointed out a few years ago, in different papers, the Indian bees as ancestors of our "Apis mellifica.")

This extraordinary meeting was a gathering of twenty-one or twenty-two nations, represented by some of Europe's most capable bee men, both scientific and practical.

To honor them, Dr. Armbruster had the flags of all these nations planted uniformly in the big pathway to his beautiful flower garden. The nations represented were: America, W. J. Nolan; Austria, D. Kretchy; Belgium, Rev. Haerens; Denmark, Rasmussen; England, Miss Annie Betts; France, Dr. G. Jaubert; Germany, D. Gerrietz; Italy, Count Zappi; Hungary, Dr. Stitz; Jugoslavia, A. Okorn; Lettland, Grunup; Netherland, M. van der Flier; Poland, Miss Malkevic; Soviet Union, Dr. Tuenin and Nethumoff; Spain, Dr. A. de Zulueta and M. van Gorkum; Sweden, M. Lundgren; Switzerland, Dr. O. Morgenthaler; Czechoslovakia, Dr. Soudek and Rev. Adametz; Ukraine, Drabacy; and so forth.

It was the greatest pleasure to see such an important gathering of nations pacifically and fraternally convening and building up the edifice of real internationalism, where the three world languages were current, at least one of them, to all—English, French, and German. The Berlin papers very kindly headed their reports on the assembly "The Gathering of Apis Brethren in Berlin." "Salve Apis Club" was inscribed above the entrance with Apis Club badge, the globe and continents.

On shelves all around the plot of ground were beehives of all nations, and the fields contained the finest collection of melliferous plants I ever saw on one spot, covered with bees and numerous kinds of bumblebees. In perfect harmony we could admire bees gathering their daily necessities on flowers and streamlets, and eager beekeepers listening to the novelties in inventions and discoveries of bee life, noting down for further use the valuable lectures.

Twenty-nine of the forty lectures sent in were read by their authors, and each one was translated for the benefit of those knowing only one of the three languages, by Miss Nora Baldensperger, my daughter, and mostly commented upon by different members of the Congress.

After warm words of welcome to the visitors, addressed by Dr. Armbruster, a memorial to honor our latest departed friends was given by Baldensperger: first, in honor of Captain James Morgan, so suddenly carried away; second, to honor the memory of Dr. Maassen, the bacteriologist of renown, who departed this life in March; third, to Dr. J. Rennie, of Isle of Wight disease fame; and, fourth, to Wilhelm Wankler, the inventor of artificial queen-cell cups for Germany in 1883.

Dr. Gerriet, ministerial counselor and chief of the institution, spoke about beekeeping in Prussia. He reminded the assembly that President Abraham Lincoln said one day, "I do not think much of a man who is today no wiser than he was yesterday," and beekeepers should not forget that. As a rule, he went on to say, beekeepers are a very patient set of people, resembling the feudal peasant who came one day to pay his due to the feudal lord. The family were at table, and the farmer, standing, talked about farm events. He stated that a sow had thirteen piglings, but only twelve teats. The baroness asked, "What about the food for the thirteenth?" "Well," said the farmer, "it does like myself: looks on and awaits its turn." Dr. Gerrietz continued that beekeepers all the world over were very much in the position of the thirteenth pig, but governments and authorities are moving now everywhere to help.

The mite disease (Acarapis woodi) being just now mostly feared in Europe, had a good many lectures, and remedies were discussed by Drs. Morgenthaler, Borchert, Freudenstein, Morland and Illingworth. The latter spoke warmly in favor of the Frow method as an absolute one. He was seconded in this by Dr. Morgenthaler, who confessed that last year in Geneva he was rather skeptical, but after a severe trial of several months he has changed opinion and is now in favor of the Safral remedy when used with precaution.

The **Acarapis externus,** observed lately, had also its part in the discussion, especially by Professor D. Borchert, director of the Biological Institute of the Reish, and Dr. K. Freudenstein, of the bee research Institute of Marburg, both very interesting revelations on the resemblance of the exterior and interior mites, too long to be given in a few words. It is a question whether they may not be the same.

Five lectures on foulbrood were given and discussed by Father Girtler, of Tyrol; Dr. Rentschler for Wurttenberg; Rasmussen for Denmark; Toumanoff for France, and Pere Baldens for Palestine and North Africa. All of them agreed that though legislation was necessary for beekeepers, unless individual efforts were employed, disease, as shown, everywhere, would be difficult to eradicate.

Laboratories are certainly handy to point out the nature of disease, but it is only dominated wholly where serious beekeepers fight disease themselves.

Dr. Himmer, in charge of the Erlangen Institute, founded by the famous Dr. Zander, author of several works on diseases, and his assiduity in discovering causes, spoke about Nosema disease, which was found by Zander in 1909 to be one of the causes of the so-called "Isle of Wight" disease, the second cause having been discovered ten years later by Miss Elsie Harvey and the late Dr. Rennie at Aberdeen, since when the "Isle of Wight" disease is a misnomer. There now exist only mite diseases and intestine diseases.

Dr. Koegel, of Munich, lectured on the ravages by the protozoans causing Nosema, which at this date is doing great harm wherever it exists. Up to date no remedy has been found.

Dr. Graf Vitzthuen, of Acarapis fame, gave a long lecture on bee paralysis and May disease. The distinguished bacteriologist found several kinds of aspergillus, not only in diseased, but equally in healthy bees. He supposes that harmless fungi may be transformed by certain pollens and act violently on bees which die in consequence.

The Soviet Union was represented by Mr. Nechuinoff (?) a learned man. Unfortunately none of the bee specialists of Russian renown, as Alpatoff, Tuenin and Michaeloff, were present. Russian research work has been progressing of late, and they were eagerly expected by many. Dr. Kickhoffel, the representative of the House of Parliament, asked for more governmental favors on honey in pure food laws, the term honey to be prohibited in every article containing sweets not originating in the hive.

Dr. G. Jaubert, of Paris, read a very interesting study on unexplained actions in the solidification of wax. Everyone knows that wax melts at a temperature of 63.5° C., but that wax is exuded by bees in a liquid form from the underside of the abdomen at the temperature of the swarm, not exceeding 36°. How then, he asks, can liquid wax be produced at 36°, when it melts only at 63.5°? Some unknown chemical action very likely takes place immediately after the voluntary secretion.

The municipality of Berlin received the visitors in the splendidly illuminated town hall and offered a welcome lunch, donating to every one an illustrated descriptive calendar of Berlin and a pot of honey as a keepsake. The Prussian state entertained with two or three lunches and a promenade on board a river steamer on the Havel, one of the rivers of Berlin, with beautiful forests bordering the waters and fine sights all along. Every congressionalist will certainly remember the friendly way in which state and town treated them, and everyone will be an advocate for the cause of peace between all nations.

(A report by W. J. Nolan, the American delegate, will be published next month.)

Winners at Washington State Fair

Daniel Wurth, of Wapato, won sweepstakes in the apiary department of the Washington State Fair, held in Yakima, September 9-14. He took first on comb honey, first on display of extracted honey, first on colored Italian bees, first on golden Italian bees, first on display of bees, first on display of queens, and second on honey vinegar. Other prominent winners were Fred Mandery of Tenino, Margaret Hartwell of Yakima, L. E. Asam of Lynden, J. N. Shaefer of Yakima, and R. L. Fisher of Leavenworth.

All Aboard for Milwaukee

It is none too early for beekeepers to begin making plans to attend the annual meeting of the American Honey Producers' League, to be held at Milwaukee, Wisconsin, February 3, 4 and 5, 1930. This meeting should be of great interest to anyone who is connected in any way with the beekeeping industry.

Beekeepers' associations should plan to be represented at this meeting. Any association that is not as yet affiliated with the League should affiliate soon, so that its representative at the meeting would have authorization to vote in behalf of his association and to take any other active part in the proceedings. The delegate appointed should be provided with the proper authorization by his association, as this will be required by the committee on credentials at the time of meeting.

It is too early as yet to say very much about the program which is being planned, except to say that it will be broad enough in scope to be of interest to all. Special attention will be given to important subjects such as recent studies on honey and its uses, marketing, and bee behavior. Local arrangements for this meeting will be made through the Wisconsin Beekeepers' Association. Speakers of prominence will be secured from far and near to take part in this three-day session of educational talks on beekeeping.

J. A. Munro,
Secretary American Honey Producers' League.

Cutts Reports Crop Short in Black Belt

J. M. Cutts, of Montgomery, sends the following statement:

"The honey crop in the Black Belt will be short and the flow two months late this year. Very little surplus will be obtained where bees have been sold in packages. The queen and package trade was good this year.

South Alabama and Florida report a bumper crop of honey. The retail price in south Alabama is 12½ cents. Don't know what they are getting wholesale, but one jobber offered 5 cents for extracted honey delivered to destination, which would mean about 3½ cents net. Extracted honey in Montgomery is retailing at 15 cents in tin, and very little on the market." Bray.

Spartanburg County Meeting

The Spartanburg (S. C.) County Bee Association held its annual picnic recently at Rainbow Lake. Ned Prevost, bee specialist of Clemson College, was on hand to lead the discussion in problems concerning the keeping of bees and plans for the fall handling. Lunches were brought by those attending and were served on the grounds. Bray.

John C. Hesseldahl Passes on at Fowler, Colorado

Following an illness of about three weeks, John C. Hesseldahl, the well known comb honey producer at Fowler, Colorado, passed away at his home six miles west of Fowler, on the Santa Fe trail, recently.

John Hesseldahl was born in Denmark in 1869 and came to the United States about thirty-five years ago, to Minnesota. Later he moved to the present residence in Colorado.

As a farmer he was successful, and he was also one of the state's prominent beekeepers. He kept about two hundred colonies of bees and produced fancy comb honey.

Texas Beekeepers Becoming Interested in New Cooperative

Texas beekeepers are interesting themselves again in the formation of a state cooperative marketing agency, for which purpose a meeting will be called at San Antonio some time in October. Low prices and the recent introduction of adulterated honey on the market has shown the necessity for such an organization.

H. E. Coffey, president of the Nueces Valley Beekeepers' Association, has outlined the benefits of a cooperative as follows:

(a) Stabilization of honey prices. (b) Financing of beekeepers with honey in storage. (c) The creation of an increased demand for Texas honey by cooperative advertising and the adoption of the slogan "Texas Honey for Texans." (d) Systematic grading of both comb and extracted honey so the consumer may be assured of a dependable quality. (e) Uniform packing rules. (f) Honey packing and bottling plant where honey can be put in small containers at the lowest possible cost per pound.

Fred W. Mally, county agent at San Antonio, who is well informed, has volunteered his service in helping to work out a definite and satisfactory program. W. H. M.

Eleventh Annual Meeting of New Hampshire Association

The eleventh annual meeting of the New Hampshire association was held in Durham August 15. The principal speaker was Dr. Barnard, of the American Honey Institute, who spoke about the work which the Institute has been doing in popularizing the use and sale of honey.

Other speakers were Mr. J. C. Barton, Meriden, N. H.; Mr. E. J. Rasmussen, of Durham, and Mr. J. R. Hepler, of Durham. The following officers were elected: President, J. R. Hepler; vice-president, Charles Pease, Marlboro; secretary-treasurer, E. J. Rasmussen, Durham.

Missouri Beekeepers Hold Meeting at Sedalia Fair

The Missouri State Beekeepers' Association had a special meeting at Sedalia, at the Missouri State Fair, on August 21. There were several speakers, including Dr. Haseman, Arthur Allen, Clay T. Davis, Jewel Mayes, secretary of the State Board of Agriculture, John F. Case, president, and Dr. William G. Wilson. The meeting was well attended.

There were quite a number of beekeepers at the fair. The honey display this year was the best ever, due to the large clover flow this season. The premiums amounted to $500. William Brengarth, of Slater, Missouri, won first for the best display of extracted honey in glass; Fred H. Drury, of Unionville, Missouri, for comb honey and for the best twenty-four sections of white comb honey in display case, also for the pyramid of six most perfect sections and for the best single section of comb honey. Good boy, Fred!

Philip Neef, Boonville, won first for the best display of twenty-four sections of amber comb honey; Ollie Kerby, of Sedalia, for the best white cut comb honey; and P. J. Crabb, of Liberal, for the best cut comb amber honey. W. C. Wright, of Holt, won first for a display of white extracted honey in one-and two-pound jars, and M. O. Stevens for amber. Carl Neef also won first for white candied honey and for the most perfect display of Italian and Caucasian bees in observation hives.

Fred Drury came in again for display of three-banded Italian bees in observation hive. W. O. Scott won first on yellow beeswax, and William Sass on white beeswax. Leo Bradford, of Liberty, won first on the most perfect Langstroth size frame of sealed honey; W. J. Patton, of Bosworth, for the most perfect empty worker-comb.

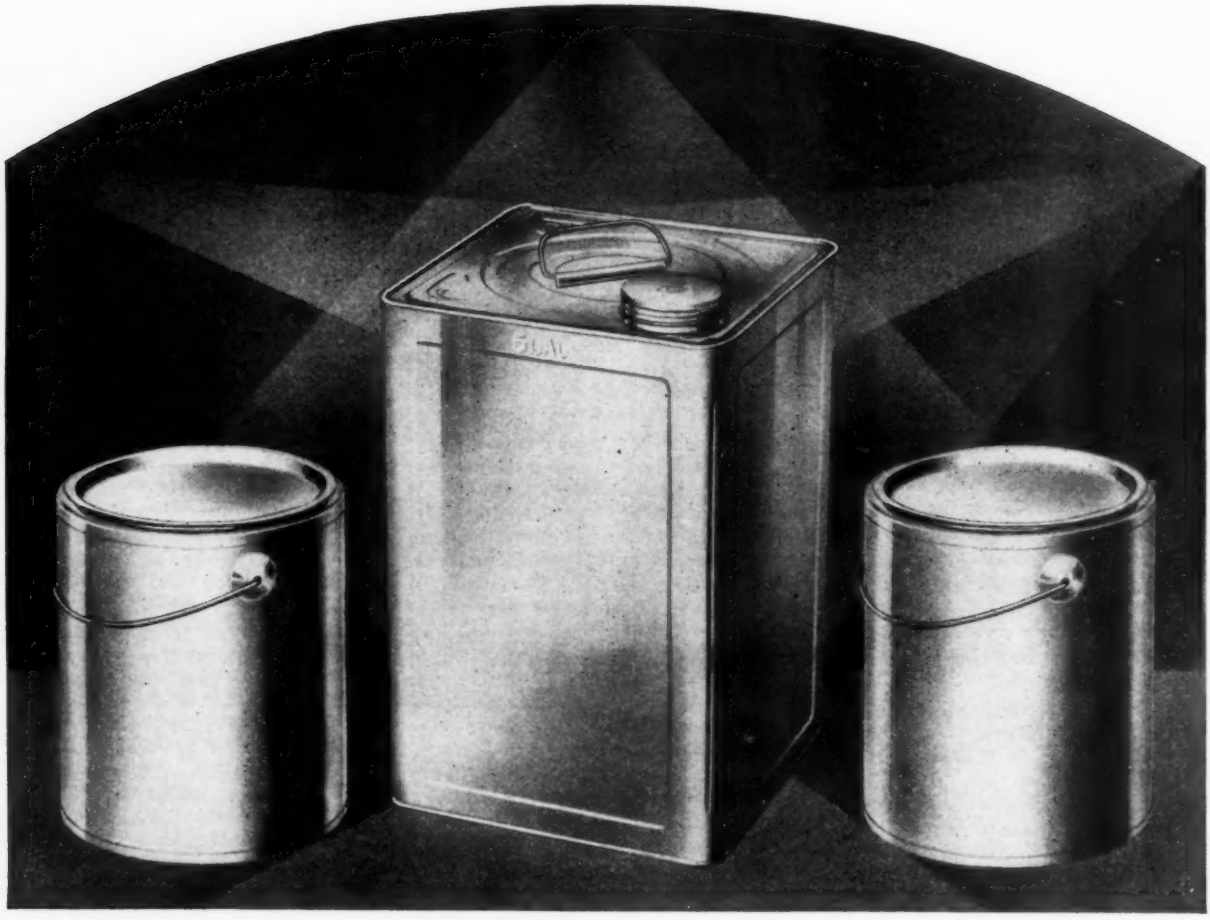
W. A. Scott, of La Monte, had a prize-winning collection of honey plants; P. D. Hull, of La Monte, for No. 1 vinegar. Bessie Hunter won first on honey candy, and Helen Bapple, of Sedalia, on honey cookies; Mrs. E. R. Knox, of Smithton, on honey cakes; Mrs. W. T. Hull, of La Monte, on honey angel cake, and Mr. F. E. Garton, of Sedalia, for the most attractive display of foods containing honey.

Altogether a long and worth-while list.

Changes in Missouri

Bee inspection in Missouri has recently been placed in charge of the state plant commissioner by the Board of Agriculture. The office of state apiarist has been abolished. Reports coming to this office are to the effect that Arthur Allen resigned the office of state apiarist; the Board, instead of appointing a new apiarist, transferred the duties of the office to the plant commissioner.

Dr. K. C. Sullivan, the plant commissioner, was long connected with the Department of Entomology of the State University and should be well qualified to handle this work.



Continental Honey Containers

These clean, bright, tight cans will help you sell more honey. They make a strong appeal to your customers and assure the Honey reaching them in excellent condition. Made in several styles and sizes to meet your needs. Complete information, prices, terms or samples may be secured through any of the distributors listed below or any of our offices.

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DETROIT JERSEY CITY LOS ANGELES ST. LOUIS CINCINNATI

"It's Better Packed in Tin"

Crop and Market Report

Compiled by M. G. Dadant

For our October report we asked reporters to answer the following questions:

1. How big is total crop compared to 1928?
2. How is honey moving?
3. What is being offered by buyers?
4. Have you made any changes in your prices from last year?

HONEY CROP TOTAL

There are very few changes over the honey crop report as listed in our September number of the American Bee Journal. Perhaps the sections of short crop have become shorter and those of good crop have become a little "longer."

Briefly, the New England States have had a much better crop than last year; New York and Pennsylvania also. The same holds true of practically all of the central western states except that western Iowa has had a shorter crop than usual, and the same holds true of the plains states of Kansas and Nebraska and the Black Hills section of South Dakota. Eastern South Dakota is at least normal and North Dakota practically so.

We find the greatest shortage of honey in the Black Hills and in the states of Montana, Idaho and Wyoming. Drought has severely affected the crop and perhaps not over half a crop at the most will be gathered.

The southern states, except for Georgia, are reporting less than normal. Texas is reporting during this month less than last year, even though reports earlier were that the crop was going to be slightly more.

Utah, perhaps, will not have over 60 per cent of last year, and Colorado barely normal.

In other words, it appears that the big producing areas are short this year of the 1928 crop, whereas the central western smaller beekeepers are having a far better crop, with, however, spotted conditions everywhere. Wisconsin and Michigan apparently have been especially well favored this year with good honeyflows.

All in all, although the crop has been good in many sections, undoubtedly the total is not going to be any larger than in 1928, and perhaps considerably smaller when last reports come in.

HONEY MOVING

Honey is moving very slowly in all southern sections. As a result some of the southern sections, even though they have had a short crop this year, are anticipating a much lower price than a year ago and are accordingly very much discouraged.

It is interesting to note that the New England States, New York and the central western sections are not rushing to market with their crop this year, but are anticipating being able to move all of their honey at the same figure as a year ago, if not a somewhat better figure in a jobbing way.

As for the western plains area and the intermountain states, undoubtedly from the reports coming in they are looking for a better price, from one-fourth cent to three-fourths cent higher than in 1928, and it looks as though they would be able to get it on account of the shortage of carload lots of honey.

BUYERS OFFERED

The tendency still remains for buyers to wait for offers from producers of honey, but offers are being made in different sections varying from 7 cents for good white honey to as high as 8½ cents in some localities. North Dakota honey has been offered at from 7 to 7½ cents. Michigan producers have, some of them, refused 8 cents and we have learned of a number of quite large quantities in the central West which have moved at prices ranging from 7½ to 8½ cents per pound.

CHANGES IN PRICES

There apparently have been very few changes in retail prices from last year, and we only know of three or four places where cut prices are going on this year and where there really is no need of it. One instance came up in Minnesota, where honey is being offered as low as $1.00 for a ten-pound pail, retail. This is out of all reason and does no good to the beekeeper himself, to his neighbor, or to the larger packer of honey who is expecting to get a living wage and a profit for himself besides making for distribution of honey.

In most instances retail prices are remaining the same throughout the country, but jobbing prices are inclined to advance.

SUMMARY

All in all, it looks like the crop this year was not going to be above the 1928 figure, when all the crop moved very satisfactorily and there was even a shortage before the 1929 crop was on the market.

The hardest section for moving honey will be in the South, where everyone seems to be discouraged over the prospects for selling the crop.

A bright lining in the cloud is the fact that fruit is so scarce. Apples are selling more readily in this central western section than we have ever seen them sell at this time of year when there was a moderate crop. We learned of buyers offering as high as $8.00 per barrel for No. 1 Jonathans, when it is nothing unusual to be offered $4.50 to $5.50 per barrel for the same quality of fruit when the crop is heavy. Retailers of fruit are asking as high as $3.00 per bushel for Jonathan apples and find the grocers willing to take almost any quality of cheaper grade fruit at high prices.

This being the case, undoubtedly there is going to be considerable shortage of fruit everywhere, and this is going to be reflected in the use of syrup a little later in the winter.

We have had a number of reports to the effect that honey is moving far more readily than it did a year ago at this time, and conditions would point that way.

All in all, we are rather optimistic on the future for the honey prices during the coming nine months, before new crop is available. We see no reason for producers to change their opinion that prices should be somewhat stiffer than a year ago and that honey sales should be readily made.

Ontario reports considerably heavier crop than a year ago, but this is offset by a lighter crop in the western provinces, where the honeyflow has been affected by the drought. All in all, the Canadian folks are not worrying any about their crop, and the export demand continues very satisfactory.

Classified Ads That PAY

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—where you may buy, sell or exchange at moderate cost — only 7 cents a word. Count each word of your message, including name and address. Our advertisers tell us: "IT PAYS." Send your ad for the very next issue now to reach us by the 15th. Terms: Send remittance with copy and order. Minimum ad ten words.

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Ads as small as ten words, costing only 70c, are accepted here, but our regular advertisers have demonstrated that it pays to tell more. Use enough words to thoroughly describe your offering and you'll sell quicker. Address all orders or inquiries to the Classified Advertising Department of the American Bee Journal, Hamilton, Illinois.

Will sell your Honey, Flowers, Poultry, Fruit, Pets (as rabbits, etc.) and more . . . . Is your ad here?

As a measure of precaution to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisers offering used equipment or bees on combs must guarantee them free from disease, or state exact condition, or furnish certificate of inspection from authorized inspector. Conditions should be stated to insure that buyer is fully informed.

Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

BEES AND QUEENS

CLOSING OUT for the season. While they last, we are offering our high grade queens in any quantity for 50c each. J. M. Cutts & Sons, R. 1, Montgomery, Ala.

IF YOU want bees that are gentle to handle, good honey gatherers and beautiful to look at, my strain of golden Italians will please you. Prices—Untested, 90c; six, $4.80; twelve to forty-nine, 70c each; fifty or more, 65c each. Tested, $1.25 each. Health certificate, safe arrival and satisfaction
Hazel V. Bonkemeyer,
R. 2, Randleman, N. C.

"SHE-SUITS-ME" Italian queens. One 80c; six, $4.00. Send for circular. See advertisement in January issue. Allen Latham, Norwichtown, Conn.

SAME OLD PACKAGE—Two pounds Italian bees, two combs (Hoffman frames), young Italian queen laying, to you. Same old price—six dollars per single package. Same old terms—one-fifth down to book order. May delivery, f. o. b. Same old Jes Dalton, St. Francisville, La.

TESTED QUEENS—For the winter months. Queens for sale any time, sent anywhere; $1.00 each. Send the order, get the queen, save the colony. D. W. Howell, Shellman, Georgia.

BETTER bred Italian queens, 45c each. Satisfaction guaranteed. Calvert Apiaries, A. L. Webb, Calvert, Ala.

PACKAGE BEES—Special price for 1930. Price list free. The Crowville Apiaries, J. J. Scott, Prop., Winnsboro, La., R. 1.

PACKAGE BEES AND QUEENS—Jasper Knight, Hayneville, Ala.

SUNNYLAND BEES ALWAYS PLEASE. Inquiries solicited. Crenshaw County Apiaries, Rutledge, Ala.

GOLDEN Italian queens, untested, $1.00 each; twelve, $9.00; six, $5.00. Breeders, $5.00 to $10.00. Tested, $2.50 each. Thirty years' a golden breeder, and they stand second to none. J. B. Brockwell, Barnetts, Va.

LEATHER COLORED ITALIAN QUEENS—$2.00; after June 1, $1.00. Tested, $2.00.
A. W. Yates,
15 Chapman St. Hartford, Conn.

HIGHEST grade Italian queens—Tested, $1.50; untested, 75 cents. Package bees, one pound, $1.50; two pounds, $2.50; three pounds, $3.25. Have had no disease. State inspection certificate with each shipment. Safe delivery guaranteed.
T. L. Davis, Buffalo, Leon Co., Texas.

THRIFTY Caucasian queens from daughters of imported mothers. After April 15: One, $1.50; twelve, $14.00. Safe arrival. Tillery Bros., Greenville, Ala., R. 6, U. S. A.

FOR SALE

IF you understand beekeeping, will sell at 50c to 60c on the dollar. Have best outfit on two counts in Iowa. Three extractings over 35,000 pounds. Delbert E. Lhommedieu, Colo, Iowa.

FOR SALE—600 colonies bees with extracting equipment, fully equipped; located in the heart of the sweet clover belt of North Dakota. No disease. Reason for selling, other interests. Write F. S., care Bee Journal.

FOR SALE—Eighteen colonies of bees in fair condition, mostly Italians. No reasonable offer refused. Have plenty of clover honey for winter stores. Hubert Martin, R. 3, Corinth, Ky.

FOR SALE—Forty-five colonies of bees in ten-frame standard hives. In fine condition, no disease. Also comb honey equipment. School work makes immediate sale necessary. Miss Edith Adams, Earlville, Ill.

FOR SALE—220 colonies of bees in good condition; truck, honey house and ample equipment, for less than value of this season's honey crop. F. W. Pease, Harpers Ferry, Iowa.

100 COLONIES bees at a bargain; ten-frame hives, Root supplies. Plenty of supers, mostly new. Never had disease. Certificate of health furnished. In North Dakota, where the crop never fails. Leo A. Bear, Grand Forks, N. D., R. 2.

FOR SALE—A modern queen-rearing outfit located in the heart of Alabama's queen-rearing section; 200 colonies of bees, 70 acres land, good house and water. For particulars, write M., Honoraville, Ala.

ROOT four-frame power extractor, in good condition, and 1½ H. P. Fairbanks-Morse gas engine mounted on metal-covered base. Extractor takes shallow or Hoffman frames; reverses combs at full speed. $65 if called for, extra charges for packing. Ellsworth Meineke, Arlington Heights, Ill.

ONE of the best honey businesses in Southwest. Write for further information. J. W. Powell, Mesella Park, N. M.

HONEY AND BEESWAX

FOR SALE—Choice extracted white clover honey at 10 cents, and choice white and sweet clover blend at 9½ cents, in 60-pound cans, two cans per case. Sample 10 cents. Emil J. Baxter, Nauvoo, Ill.

WATER WHITE extracted, in case, ton or carload. Use no capping melters. Sample 15c. George Seastream, Moorhead, Minn.

CHOICE clover honey in new 60-pound cans. W. H. Mays, Goshen, Ind.

CHOICE extracted and chunk honey. Henry Stewart, Prophetstown, Ill.

WANTED—Strictly graded white clover comb honey, 4¼-7/8, wood glass front cases. State quantity and lowest price delivered Chicago. Also extracted. A. L. Haenseroth, 4161 Lincoln Ave., Chicago, Ill.

FINEST quality honey for sale. Write for sample. W. G. Duckwall, Jacksonville, Ill.

FOR YOUR APPROVAL—White clover, heartsease and goldenrod honey. Five-pound pail one dollar, postpaid. Quantity rates. Ambraw Apiary, Landes, Ill.

WANTED—A car or less quantity of white honey in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkley, 816 Hazel St., Birmingham, Mich.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cents a pound for wax rendering. Fred W. Muth Company, 204 Walnut St., Cincinnati, Ohio.

NEW BUCKWHEAT HONEY—Extracted, in 60-pound cans, 7c; No. 1 comb, per case, $3.50. None finer. F. J. Smith, Castalia, O.

COMB, extracted and chunk honey in ten sizes glass containers and 2½, 5-, 10- and 60-pound tins. Livest labels in U. S. or plain. One of our special display cases with $25 and $50 orders. Write for free illustrated circular showing our packages and free samples of honey. Griswold Honey Company, Madison, O., U. S. A.

WANTED—Honey, either comb or extracted. Write us if you have surplus honey to market. We can use any quantity. Sioux Honey Association, Sioux City, Iowa.

CLOVER HONEY—120 pounds in case, 9c per pound. Sample 15 cents. Sylvester Legat, Spring Valley, Ill.

FOR SALE—Finest white clover chunk and extracted in 5- and 60-pound tins. Joseph H. Hoehn, Ottoville, Ohio.

FINE quality white clover honey in new 60-pound cans, one to a case, 10 cents per pound. John Thompson, Lloyds, Md.

FOR SALE—One carload of approximately 40,000 pounds sweet clover honey in new 60-pound cans. Can deliver October 1. Ref., Bank of Toronto. M. W. Thompson, Toronto, S. D.

RASPBERRY and clover extracted honey in 60-pound cans, 12½c pound; twelve 5-pound pails, $9.60. L. J. Carter, 336 M Street S. W., Washington, D. C.

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Company, 230 Park Avenue, New York.

FOR SALE—Bulk comb and extracted honey, both clover and light amber. F. E. Hyde, New Canton, Ill.

FOR SALE—Clover and amber honey, comb and chunk. H. M. Rice, Memphis, Mo.

FOR SALE—Choice white clover honey by case or carload. W. S. Wiggins, Muir, Michigan.

FOR SALE—New crop white clover comb, 4¼x1⅞ sections. C. Holm, Genoa, Ill.

WANTED—Dark honey for bakery. Edward Klein, Gurnee, Ill.

FOR SALE—Light honey that is very pretty in glass, and fine flavor, in new oak barrels of about 400 pounds each. P. W. Sowinski, Fort Pierce, Fla.

CLOVER HONEY—Comb and extracted. Dr. E. Kohn & Son, Grover Hill, Ohio.

QUALITY clover bulk comb honey. Six 10-pound pails, $7.50. Fred Peterson, Alden, Iowa.

FOR SALE—60,000 pounds very light, heavy body Michigan clover honey. Sample 10c. Under 1,000 pounds, 9½; over, 9c, f. o. b. Portland. Ralph E. Blackman, R. 4, Portland, Mich.

FOR SALE—White clover comb honey. Charley Guhl, Napoleon, Ohio. Rt. 7.

CLOVER HONEY—Comb and extracted. Glass front cases, mixed order, $4.50 per case. Quality and arrival guaranteed. Single cases sold and crated. D. J. Blocher, Pearl City, Ill.

FOR SALE—Fancy and No. 1 comb honey. Glass front cases, mixed order, $4.50 per case. N. B. Querin & Son, Bellevue, Ohio.

CLOVER and clover-buckwheat blend extracted honey; good body and flavor. D. H. Morris, Swanton, Ohio.

FOR SALE—Fancy white clover extracted honey. One 60-pound can, $6.00; two 60-pound cans, $11.50, f. o. b. Ordway, Colo. Wholesale prices on request. Hersperger Apiaries, Ordway, Colo.

HONEY WANTED—Small or large lots, white or extra light amber grades, in 60-lb. cans. Send samples, state quantity and lowest N. Y. delivered prices. Also can use white comb if state section size, and style packing cases, with delivered price.
Arthur H. Hoffman, Inc.,
Richmond Hill, N. Y.

HONEY FOR SALE—All grades, any quantity. H. & S. Honey and Wax Company, Inc., 265 Greenwich St., New York City.

WANTED—Car lots of honey. State quantity, shipping point and price. Mail sample. Hamilton, Wallace & Bryant, Los Angeles, Calif.

FOR SALE—Extracted clover honey by pound, ton or car. Sample 15c. Victor Apiaries, Chaffee, N. D.

FOR SALE—Finest quality light amber white clover honey, in new 60-pound cans, $10.50 a case. Large sample 20c. Martin Carsmoe, Ruthven, Iowa.

EXTRA heavy body, water-white sweet clover honey, any quantity in pails or 60's. Sample 10c. C. S. Engle, 1610 Fourth Ave., South, Fargo, N. D.

FOR SALE—White clover honey in 60-pound cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

FOR SALE—No. 1 clover comb honey, $4.50 per case; No. 1 dark, $3.00 per case, 24 section cases, six cases to carrier. Clover extracted, 10c; dark, 7c, two 60-pound cans to case. H. G. Quirin, Bellevue, Ohio.

WHITE CLOVER comb honey, packed eight cases to carrier. W. L. Ritter, Genoa, Ill., DeKalb County.

BLACK HILLS fancy light extracted honey from sweet clover and alfalfa, in large and small quantities. Ernest W. Fox., Fruitdale, S. D.

15,000 POUNDS of delicious white clover honey, $12.50 per case of 120 pounds, freight paid to your station within 500 miles of Savanna. Write for large lot price. Valley View Apiaries, Savanna, Ill.

WHITE COMB sweet clover honey, case 24 sections, $3.85. Marsalek Apiaries, Cadams, Neb.

EXCELLENT quality, straight white clover honey, extracted and chunk comb, any pack, priced right. Ohmert Honey Company, Dubuque, Iowa.

HONEY (comb and extracted), pure maple syrup, maple sugar and sorghum molasses. Special price to quantity buyers. C. J. Morrison, 1235 Lincoln Way West, South Bend, Ind.

HONEY FOR EVERY PURPOSE—We have it in any amount; light amber and white clover, basswood, sweet clover, buckwheat. Write us what you need and ask for prices. A. I. Root Company of Chicago, 224-230 West Huron Street, Chicago, Illinois.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans. State quantity wanted and we will quote prices. Samples on request.
Dadant & Sons, Hamilton, Illinois.

STURDEVANT'S CLOVER HONEY — St. Paul, Neb. Any quantity.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colorado Honey Prod. Ass'n, Denver, Colo.

HONEY FOR SALE — White and amber honey in 60-lb., 10-lb. and 5-lb. tins. Write for prices.
Dadant & Sons, Hamilton, Illinois.

SHALLOW frame white comb honey and white extracted honey.
The Colorado Honey Prod. Ass'n,
Denver, Colo.

FOR SALE—Northern white, extracted and comb honey.
M. W. Cousineau, Moorhead, Minn.

HONEY WANTED—State quality, quantity and price. D. Steengrafe, 116 Broad St., New York.

MICHIGAN HONEY—New crop of extra fine quality clover extracted honey. Howard Potter, Jr., Ithaca, Mich.

CLOVER HONEY FOR SALE—A. G. Kuersten, Burlington, Iowa.

NEW CROP extracted clover honey, in new cans and cases, for sale in case or ton lots. Satisfaction guaranteed. Sample 20c. Prices on request. Harry C. Kirk, Armstrong, Iowa.

NEW CROP white clover extracted and chunk comb honey. Write for sample and prices. Kalona Honey Co., Kalona, Iowa.

NEW CROP fancy clover honey, comb and extracted; finest quality. Write Irvin A. Stoller, Latty, Ohio.

WANTED

WANTED—To buy power honey extractor, eight-frame or larger. J. D. Rutledge, Winter Garden, Fla.

WANTED—A young married man wants work in an apiary for 1930. Experienced. Prefer the West. Gus Woemmel, Owensville, Mo.

SUPPLIES

FOR SALE—Used 60-pound honey tins, two to case, 70c. A. L. Haenseroth, 4161 Lincoln Ave., Chicago, Ill.

BEEWARE, Dadant's wired foundation and "Canco" cans for the Northwest. Catalog prices f. o. b. Fromberg, Montana. Write for prices. B. F. Smith, Jr., Co., Fromberg, Montana.

STRAW SKEPS for sale, $5 each, express prepaid. G. Korn, Berrien Springs, Mich.

MAKE queen introduction sure. One Safin cage by mail, 25c; five for $1.00 Allen Latham, Norwichtown, Conn.

100 USED eight-frame comb honey supers, complete. Size 3⅝x5x1½; plain; 50c each. Ohmert Honey Company, Dubuque, Iowa.

SAGGED COMBS are result of slackened wires caused by wires cutting soft wood of frames. Use metal eyelets. Per 1,000, 60c. Handy tool for inserting eyelets, 25c. Postage 3c per 1,000.
Superior Honey Co., Ogden, Utah.

FOR SALE—Foundation, bee brushes, comb honey cartons, feeders, nailed and painted bodies, bottoms, covers, and bodies, veils, sections, a big assortment of frames, excluders, comb and extracting supers k. d., and many other items in good, usable condition. Reason for selling, items no longer listed in our catalog. Prices the lowest anywhere for the value. You can address G. B. Lewis Company, at Watertown, Wis., Albany, N. Y., Lynchburg, Va., Texarkana, Ark., or Sioux City, Iowa.

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We buy beeswax at all times and remit promptly.
The Colorado Honey Producers' Ass'n,
Denver, Colo.

FOR SALE—We are constantly accumulating bee supplies, slightly shopworn; odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it.
Dadant & Sons, Hamilton, Illinois.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.
American Bee Journal, Hamilton, Ill.

THE DADANT SYSTEM IN ITALIAN—The "Dadant System of Beekeeping" is now published in Italian, 'Il Systema d'Apicoltura Dadant." Send orders to the American Bee Journal. Price $1.00.

RABBITS

IF you are looking for A No. 1 stock Chinchillas, standard and heavyweight, black silver fox fur rabbits, write for prices. Lieske's Rabbitry, Box 155, Fairwater, Wis.

MISCELLANEOUS

DIRECT MAIL ADVERTISING — Tell us your problems. Moderate rates. Advertising Service Bureau, 724½ Bank, Keokuk, Iowa.

SELL IT—Honey or bees or queens or second-hand equipment or pet stock or poultry, by advertising it in Gleanings in Bee Culture, Medina, Ohio, with its more than 20,000 paid subscribers. Rates: 7c a word classified; $4.20 an inch for display advertising. That great beekeeper, George S. Demuth, is editor, for whose beekeeping teachings 20,000 beekeepers subscribe.

BANKRUPT and bargain sales. Big profits. We start you, furnishing everything. DISTRIBUTORS, Dept. 377, 429 W. Superior, Chicago.

WHITE KING pigeons at $2.00 per pair; mated and banded. Will trade for bees, honey or White Leghorns. Harry Brown, Vermont, Ill.

BEE BOOKS

For Winter Reading

THE HONEYBEE, by Langstroth and Dadant—A complete textbook on beekeeping. Includes authoritative information on technical phases of beekeeping as well as being a full source of information on practical beekeeping problems. 450 pages, 200 engravings, cloth bound. Price $2.50. Also editions in French, Italian, Spanish, Russian, at the same price.

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AMERICAN BEE JOURNAL
HAMILTON, ILL.

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Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, of American Bee Journal, published monthly at Hamilton, Illinois, for September, 1929:

STATE OF ILLINOIS, } ss.
County of Hancock, }

Before me, a notary public in and for the state and county aforesaid, personally appeared M. G. Dadant, who, having been duly sworn according to law, deposes and says that he is the business manager of the American Bee Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, rendered by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business manager are:

Publishers, American Bee Journal, Hamilton, Ill.

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Managing editor, G. H. Cale, Hamilton, Ill.

Business manager, M. G. Dadant, Hamilton, Ill.

2. That owners are:
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That the known bondholders, mortgagees and other security holders owning or holding one per cent or more of the total amount of bonds, mortgages or other securities are: None.

(Signed) M. G. DADANT,
Business Manager American Bee Journal.

Sworn to and subscribed before me this twentieth day of September; 1929.

BIRDIE ASH,
Notary Public.

My commission expires March 6, 1930.

Let the Better Half of Beekeeping Be the Beekeeper's Wife

(Continued from page 489)

minutes, add a few nut meats, top with whipped cream, a generous drizzle of honey, a few more chopped nut meats, chill and serve.

Honey Pineapple Special—On each service plate place a crisp lettuce leaf, and in its center a ring of pineapple. About the outer edge of pineapple arrange thin slices of bananas, and about the edge of the banana sprinkle cocoanut. Fill the inside ring of the pineapple with crystallied honey, covering it with cocoanut. Pass separately cream slightly sweetened with liquid honey.

Raisin Puffs—Boil one cup seeded raisins in one-fourth cup of honey until they are well cooked and puffed. Remove from fire, cool a little and stir in one cup diced marshmallows. Place in sherbets, chill and serve with cream and honey.

American Honey Institute

(Continued from page 489)

prove the quality of bakery products through the use of high grade materials such as honey. Both firms have been cooperating with the American Honey Institute.

The Fleischmann Company maintains a traveling school for the education of bakers, which gives a course to the bakers of Indianapolis and vicinity during the month of August. The staff, under the direction of William Broeg, used honey in demonstrating the making of foods at the school and issued directions for its use on formula sheets distributed to the students.

During the next few months the school will visit Grand Rapids, Michigan, and several northern cities, and then, as winter approaches, turn toward the South.

Dealers in honey will find a visit to the school well worth while. It will be of interest to know that Mr. Broeg, the director of this school, which has several thousand students a year, learned of the work of the Institute when Miss Fischer and Dr. Barnard visited the annual cake and retail bakers' conference at Chicago last February.

The Fleischmann Company Features Honey Almond Coffee Cake in September "Good Housekeeping

The honey-almond coffee cake is of such quality that the Fleischmann Yeast Company featured it in their advertisement in this month's Good Housekeeping, page 189, under the title of "Now Breakfast Breads are Interestingly Varied." This honey-almond coffee cake was mentioned in the printed matter and shown under the illustration with the words, "Honey Coffee Cake Spread with Honey, Butter and Ground Almonds is a Great Favorite."

Institute to Attend Health Food Meetings

Miss Mary I. Barker, of the Kellogg Company, has invited the American Honey Institute to come into a booth with the Kellogg Company at the following meetings: American Public Health Association, Minneapolis, September 30-October 5; American Child Health Association, Minneapolis, September 30-October 5; American Dietetic convention, Detroit, October 7 to 10; National Restaurant Exposition, Louisville, October 7 to 11; National Dairy Show, St. Louis, October 14 to 18.

Honey will be displayed, complimentary packages of honey-date bars, honey candies, two-ounce jars of honey will be given away, and special honey literature is being prepared for distribution.

We will need many pounds of honey to make up the date bars and candies, and we hope our members and beekeepers will cooperate with us to make our honey showing the best over.

Send in donations to the American Honey Institute, Indanapolis, Indiana, if you possibly can. Send them early and drop us a postal card before you mail, so that we can be expecting the shipment. Please help us make these meetings a success.

Swarming With Queen-cells but No Larvae

This summer I placed brood from a strong colony in the third story of another colony to prevent the strong colony from swarming. Queen-cells were started. As soon as all brood was completely sealed, it was removed from this part of the hive. Three days later I found a number of queen-cells started and royal jelly in them, but no eggs or larvæ could be found. These cells were all destroyed, using care to remove all possible traces of jelly and to make a thorough hunt for any eggs or larvæ anywhere.

Three times queen-cells were started again and destroyed. A swarm issued from below and the efforts to build cells in the third story ceased. At no time could I find eggs or larvæ from which a queen could have been produced after removing the brood first placed there. Yet they continued to start cells entirely without eggs or larvæ.

A. H. Pering, Florida.

(This is abnormal.—Editor.)

That Iowa Bee Case

For more reasons than one have I been interested in the Ames, Iowa, bee case. I noticed a write-up of this case in the September issue of the American Bee Journal, page 430, so am herewith enclosing a clipping taken from the Lohrville Enterprise. This clipping explains how the case was disposed of, and has been published in several Iowa newspapers. The owner of the bees moved his bees away. Then the case was dropped.

When Mrs. McMillin resided at Lohrville, Iowa, I kept fifty colonies of bees just across the street from her home and never had a single complaint; in fact she and her family were very good honey customers of ours and expressed their regret when we moved away from there.

Here, in my home yard, I have one hundred and twenty-five hives of bees, and the homes of four neighbors are located within one hundred feet from these hives. We have resided here for nine years and have no complaints.

Chas. L. Ruschill, Iowa.

(A very good way to get along with one's neighbors is to give them a little honey from time to time.—Editor.)

Concerning Bee Stings

Gas engineers, both the natural and artificial gas, for a long time have been annoyed by the newspapers carrying articles saying that the various explosions were caused by "gas," when in reality gasoline was the cause. Then again, neither gas nor gasoline was to blame, as was later found out, but too late to remedy the wrong done—adverse advertising.

Now it is the bee sting. Three cases have come before the writer within less than three months, and in each case a bee stung the driver of a motor vehicle, the driver lost control—not the bee—and somebody or the vehicle was injured.

Are there no other kind of flyers that sting? Yes, lots of them. Then why blame it on the bee? Because she is the best known of the crowd, not as a stinger, but because of her prominence and goodness, and that's how the latest injustice is being rendered.

The "Ætnaizer," the house organ of the Ætna Life Insurance Company, records a $5,000 damage suit resulting from a bee stinging a woman auto driver who lost control of her car, injuring another person, and concludes that it pays to "bee" insured.

No doubt about that, but the busy little bee says let me be, and run along and find some other brand of defamer.

J. B. Dillon.

I Am Quite Sure the Jay Is Right

By J. B. Douglas

I believe Jay Smith is right when he says, "If you only believed all you hear about bees you wouldn't know whether a colony contained all queens, drones, or workers." This is commented upon by Charles Zick in the May number, page 241.

A case in point is that of a beekeeper who had thirteen stands of bees. I stopped in to have a little talk with him about his bees. New country to me and I wished to find out how bees did, as I was moving a yard in.

"I see you keep bees. How many have you?" "Thirteen gums," he said, "but I have had as many as twenty at a time." These bees were in boxes made of 1x12-inch cut about three feet long, and stood upright with a small square box on top. "Did you ever try keeping bees in standard hives?" I asked him. "You mean them patented gums," he said. "No, I wouldn't waste my time fooling with them things. There is no place to put on a box to get honey."

It was around 3 p. m., and as we stood in front of one of these long Ideal gums standing up and down, the drones began to buzz. "See the kingbees," he said. "Is them kingbees?" "Yes, don't you know a kingbee?" "I do not." Said I, "have you also any queenbees in them gums?" "Sure, every kingbee has a queen." "I didn't know that." "Well, you keep bees as long as I have and you will know something about them. I have got over twenty pounds of honey off of some of these gums." "How long have you kept bees?" "Well, sir, as long as I can remember. My father had bees when I was a kid." "Have you ever been in a bee yard where bees were kept in modern hives, honey taken out of the combs with a gas engine, combs put back on the bees to fill again?" "No, I never heard of such a thing. Where can I find such a place?" "Just thirty miles down the valley I have such a place. Come down and see it. You are more than welcome." "I'll be down, by gum. I didn't know you kept bees." "I don't; they keep me. I haven't any kings down there and never have found but one queen in a hive." "I want to see some of them patented gums and I sure will come down there."

This place is fifty-two miles back from any town or railroad and I have moved in. There never was a beekeeper in here, and the kingbee man, I think, never was out of here. I have everything up-to-date.

Bonita, Arizona.

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AMERICAN BEE JOURNAL
HAMILTON, ILLINOIS

A Word of Appreciation

We wish to thank our many queen and bee customers for their patronage this season. We still have some splendid young laying queens to offer during October and November. Queens are easily introduced late in the season, so don't leave colonies queenless during the winter months.

Queen Prices—Untested Queens:
1, $1.10 each; 10, $1.00 each
50, 85c each; 100, 75c each

The A. I. Root Co.
Medina, Ohio

What Is the Value of a Hive of Bees?

THE subject of the above caption was briefly discussed in the American Bee Journal a year or so ago, but as the estimates given as to the value of a hive of bees seemed to the writer altogether too low to do justice to the beekeeper forced to sell his bees because of ill health, or to his widow, who would sell to the best advantage after he passes on, we would like to present our views on this matter for the benefit of those mentioned.

In the first place, it seems that because of the low value generally placed on a hive of bees it has become hard to sell them at anything approaching the right price. A beekeeping friend recently advertised his bees for sale because of chronic illness, and received about a dozen or more answers in reply. But in writing all of these prospects, and quoting them his price of ten dollars per hive, which included a full-depth super with beautiful drawn combs, there prevailed a stillness at the other end of the line, which indicated that those who answered his ad were all looking for something for nothing.

It seems that the world is full of people looking for something for nothing. But we can't much blame them for being that way, for most of us are inclined to buy things at a low price. Yet as pertains to bee equipment these same people "looking for something for nothing" will often turn around and pay the same price for bee supplies in the flat for which they could have bought bees on beautifully drawn combs, with a hive full of brood and all ready for business.

It verily seems that the price of a hive of bees never varies, though that of bee equipment has ever soared. One hundred years ago a swarm of bees in an old log gum was considered "worth a load of hay," which in money would be around five dollars then, when the purchasing power of the dollar was fourfold greater. And many people seem still of the opinion that they ought to be able to buy bees in modern hives at the same price today. And they hang to this idea despite the fact that modern hive equipment is not as cheap as it was some thirty years ago and that a single swarm of bees in a modern hive is worth more than ten in a box-hive or a log gum.

But, getting down to facts and figures, what is a hive of bees really worth?

I have before me a catalog of one of the largest bee supply houses in the United States, which quotes hives of single bodies, nailed and painted, with full sheets of foundation, at $7.80 each.

In turning a page I note that standard bodies of ten-frame size, with frames and foundation, nailed and painted, are quoted at $4.50 each. In adding price of queen excluder, this makes the price of hive with full-depth super $13 each.

With the above value of $13 in mind, bees are now needed before the hive is ready for business. So what are the bees worth with which to stock our new hive? At pound package rates about the middle of April, we would judge the queen and bees of a well managed ten-frame hive to be worth all of $5, probably more.

Then what is the added value of drawn combs? In view of the statement that bees consume from fifteen to twenty pounds of honey to produce a pound of wax, coupled with the fact that bees lose time in honey gathering while drawing out combs, and that drawn combs are worth twice as much to the beekeeper at the beginning of the honeyflow as would be full sheets of foundation in the hive, we would estimate the added value of drawn combs to be not less than 25 cents each over frames of foundation, or a total of $5 for twenty drawn combs of hive body with super.

There remains the added value of, say, from ten to fourteen frames of brood, which ought to prevail in any well managed hive about the middle of April. What is this brood worth? As it takes a frame of honey to produce a frame of brood, would 50 cents a frame for the honey from which this brood is produced be too much? If not, here is my estimate of the real value of a hive of bees:

Cost of hive materials as mentioned	$13.00
Added value of queen and bees	5.00
Added value of drawn combs	5.00
Added value of brood in spring	5.00
Actual value of bees per hive	$28.00

Is the above estimate conservative? We think it is. Then as a colony of bees housed in a modern hive in a fair location will produce from $15 to $20 worth of honey in any fair season, is there any other investment within the realms of the business world in which one could buy something for $10 actually worth $28, with every chance of doubling his money in a single season?

Then would it not be actually more profitable, for those beekeepers who buy bees by the pound in the spring, to buy them on drawn combs with a hive full of brood, where such bees may be had at around $10 per hive, and guaranteed free from disease, with hives in A1 condition?

X Y Z

The Modified Dadant Hive in England

By Gilbert Barratt

We, in England, have had, from time to time, wordy battles in the bee press, on the best size of hive and frame for this country. It may be due to the training of the archaic guides, but the fact remains that the majority of beekeepers here love frills, and the sight of a plain, rectangular box, as a beehive, either drives them into a frenzy or, like as not, a sotto voce, "poor fool" is heard. It is difficult to understand, for instance, why the average Briton is so wedded to a porch to his hive. You may tell him that it is a superfluity, an expense, that it is a spider-haunted trap for his bees, that the bee in a natural state flies straight into the bole of the tree which is her home—it makes no difference, and the extraordinary thing is that he cannot give you one sensible reason for its retention; and the same holds good for his gabled roof, loose outer cases, larger alighting board, and his frame with the absurd lug, one and a half inches long, which same lug makes his hive the most expensive in the world.

Whilst we had the old English black (so called) bee, quite good results were obtained from the ten-frame (14x8½) hive, though truth to tell, where brood frames were used for supering it was difficult to say what size the hive really was.

But when the Isle of Wight disease took its toll, to the extent of about 90 per cent of the bees of this country, mass importation of foreign bees and queens followed, the bulk being Italian and Dutch, but prolific breeders, and in consequence the standard frame became too small, and this showed itself to a marked extent in the autumn, when the ten small frames were insufficient for the relatively large amount of brood, and a sufficiency of food for winter. A compromise was often effected, either by the use of a super of shallow frames or more usually an orgy of daily feedings in early spring.

In these circumstances the setting up of apiaries consisting solely of Modified Dadant hives was quite a courageous act, and as for growing sections over them, I was told on all sides that the thing was impossible. Well, events have proved that the impossibility was a splendid reality, and in anything like a season the Modified Dadant hive has more than justified itself. In the first place, I simply cannot afford, in either time or money, the multiplicity of parts necessary for the small hive, in the production of honey on a commercial scale. Even the small hive man admits that he must use two brood bodies if he is to obtain his maximum crop, and the handling of twenty or more frames, to say nothing of the making up and cost of these frames, makes their use, on a commercial scale, an impractibility. This also applies, though not quite so acutely, to the Langstroth frame, which is used to a limited extent in England.

I, at any rate, have found the shallow food chamber a perfect nuisance; the queen always starts her brood nest there, and when she has filled this and descended to the brood chamber she will always return to the polished cells when the brood has emerged. The Modified Dadant hive abolishes all this.

I have used the Modified Dadant hive now for six years, and each year I am more impressed with its superiority. I am a little disappointed regarding its claims for reducing swarming to a minimum, but as most of my stocks are run for sections, perhaps I have expected too much; but what I so appreciate is the lowering of overhead costs, the ease of handling a smaller number of frames, the cutting out of the labor and expense of feeding, in either autumn or spring, and lastly, when the bees are finally looked over in the autumn, the knowledge that they can be left with the assurance that until the spring has well opened they require nothing more than, as Jay Smith says, "a good letting alone."

England.

Human Eyes See 100 Times Better Than Bees

The human eye sees one hundred times as well as that of the bee and one thousand times as well as the little fruit fly, Drosophila, favorite object of biological research, according to a new method of insect vision reported by Dr. Selig Hecht, Ernst Wolf, and George D. Wald, of Columbia University.

The insect eye differs from that of higher animals in that it is like a mosaic of tiny hexagonal pyramids of different apical angle. The visual capacity of the eyes of both the bee and the fruit fly was found to vary, however, with the degree of illumination present, much as human eyes do, being of low visual capacity in dim light and increasing as the light grows stronger.

This brings up the oft perplexing question of how bees manage to see and communicate in the dark passages of the beehive.

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HERMAN McCONNELL
(The Bee and Honey Man)
Robinson Route 2 Illinois

New Way to Find Arsenic in Bees Poisoned by Dust or Spray

It is very important that beekeepers, or at the least the research centers to which they apply for advice, should be able to prove the cause of death with certainty in cases where there is reason to suspect that dusting or spraying of vegetation with arsenical compounds has been responsible for a mortality of bees. Since the fatal dose for a bee is approximately 0.0005 gm. of arsenic, it would be necessary to use microchemical methods of analysis, unless a large quantity of material were available. A special laboratory and a highly trained chemist skilled in microchemical work would be indispensable.

Seeds Inspector H. Stubinger, working under Prof. Dr. Zander at Erlangen, Bavaria, has applied to the bees' case a method which has, it appears, been known for some time to forensic medicine, but was practically unknown to those engaged on bee research. As long ago as 1880 Giglioni discovered that certain molds, when grown upon suitable media containing arsenic, cause the emission of an odor. Later it was found that the blue-green mold **Pencillium brevicaule** was especially effective for the purpose. A culture of it, on a medium containing arsenic and a free carbohydrate (for example, a mush of potato, and pollen from a colony poisoned by dusting of the bee forage with an arsenical dust), emits in a few days a strong and unmistakable odor of garlic. Arsenious salts are the easiest to detect; the method will reveal the presence of as little as 0.0001 gm. of these. Though not as sensitive as the latest microchemical methods (which will detect 0.000001 gm. of these salts), the biological method described is likely to prove useful to beekeeping research institutes, since no apparatus is required save a few bacteriological "potato dishes" and some means of sterilizing glassware and media; and no special skill beyond an elementary acquaintance with culture routine.

Herr Stubinger advises the use of ordinary mashed potatoes (as prepared in the kitchen) with water (omitting milk or butter). The mush is spread on the bottom of the potato dish, after having been thoroughly mixed with the material to be examined for arsenic, and the dishes are then sterilized once or twice, for forty-five minutes (an ordinary potato cooker will do if special appliances are not available). When cool, the medium is then inoculated with a pure culture of the mold, and the dishes put aside, covered from dust, for a few days (three or more, according to the temperature at which the cultures are kept) until a good growth of mold is seen. If arsenic be present, there will then be a smell of garlic, which will be very penetrating and unmistakable if arsenic be present in appreciable quantity.

Herr Stubinger carried out some experiments on bees and pollen in combs from a location in Stettin where the dusting of a wood had resulted in loss to beekeepers. He found that damage had been done to bees situated as much as five km. (3.1 miles) from the area dusted, and that there was no apparent connection between situation of the colonies and amount of poisoning. Some colonies close to the dusted area were but slightly injured, while others much farther from it were seriously affected. The dead bees were quite dry when the experiments were made, so that the method is effective after a delay of some months.

A paper on this method was presented by Prof. Dr. Zander at the Apis Club Conference last July, (though, on account of his regretted absence, it was not read). It will be found in The Bee World, December, 1928, page, 188. Herr Stubinger's paper (reviewed above) is in Vol. VI, Erlanger Jahrbuch.

Annie D. Betts.

Study of Bee and Ant Poison

The use of living plants as laboratories in which animal poisons may be differentiated by their effects on the plants was described recently by Dr. David I. Macht, of the Johns Hopkins University, before the thirteenth International Physiological Congress.

Drugs of vegetable origin, he declared, are frequently more poisonous to animals than to plants, and vice versa. A toxin discovered by Dr. Macht in the blood of pernicious anemia patients is not present in secondary anemia and similar blood disorders. The effect of this poison on plant seedlings has furnished a test for distinguishing pernicious anemia from related blood disturbances at certain stages of its development. This makes it possible to start curative treatment earlier than would otherwise be the case.

A toxin just discovered in the blood of lepers serves to distinguish leprosy from the blood sera of tuberculosis and syphilis and has led to an important discovery in regard to the disease.

Further investigations to be reported are on the blood of malaria, eclampsia sera, and on the extreme toxicity of certain animal poisons—toad, bee, ant, and particularly snake venoms.

Maybe—Who Knows?

"Honey Helps Cure Cancer"

A remarkable cure of cancer of the colon is briefly related in the September number of "The Healthy Life" (an English paper). A diet of honey combined with the methods of nature cure takes the credit for this marvelous recovery. For weeks the lady who was suffering with this terrible malady was fed via the rectum, as no food could be fed in the ordinary way. Strange to relate, she had taken a most intense longing for honey, and so the letter continues:

"A friend having brought her a comb from which she had sucked the health-giving, much-needed 'food,' to everyone's surprise the poor, ill-used stomach did not resent and the honey passed on to do its wonderful work of healing the tortured colon. Finding she felt rather better than worse, she in succession took the contents of fifteen honeycombs (presumably sections). . . .

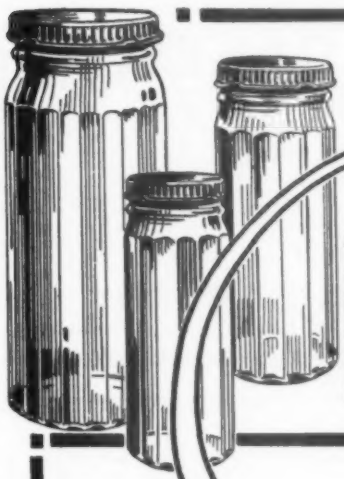
"I mixed equal parts of orange and lemon juice with honey and yadil, to be filled up with as much water as to make an agreeable beverage. This she made her chief drink for a while, until she was able to take food more easily. Now, after twelve months or more, she is a new woman. The growth cleared out—came out in three pieces, and the roots were passed through the colon. What do you say to honey as an aid in cleaning a diseased and poisoned bowel?"

Leonard S. Harker

A friend of ours, a prominent beekeeper whom everyone would know if his name were mentioned, reported to me not long ago having been pronounced with incipient cancer at an early age and given up by his home physician. He persisted, however, in looking for help and finally went to one of the so-called nature sanitariums, where he was put on a very strict diet and made to fast over a long period, in which he said his body threw off most unmentionable poison.

After that he was put on a strict diet of natural foods, including honey and vegetables, practically everything in a raw state, and allowed only to eat sparingly for some time. The symptoms which had been pronounced so bad by physicians entirely disappeared and he is still alive, enjoying life as one of our most successful large producers of honey. Naturally he is enthusiastic for the simple life and natural foods.

Maybe there is something in it, after all.



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HAMILTON, ILLINOIS

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CHRYSLER'S Lock-End, End Spacing Top Bar **BROOD FRAMES** are the strongest and more quickly assembled than any frame made.
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Extracting Time?

By Mrs. G. E. Pollard

Reading Betty Bee's article on extracting makes me recall ours, and I'm betting a lot of funny ones could be had if truth were told.

Looking back, I see many a laugh we overlooked at the time, but somehow, sometimes, we feel it best to withhold our mirth. It was about as crude as possible in these days of invention, but lack of funds often makes us do things we would not consider otherwise. We put our two-frame hand extractor on the back porch, boring holes in the floor to clamp it firmly in place. I, in my kitchen, with ten-pound bucket over burner of oil stove, with two dull second-hand knives, uncapped or tore off the cappings as best I could. We put quantities of newspaper over the lineoleum to help overcome the mess, only to find, on shifting position, that they stuck to our shoes. Husband's working days made it necessary to extract at night, making matters worse and the job stickier. How well I recall when I thought we were through, and how diligently I scrubbed, scoured and scraped, with paring knife, chore ball, Dutch Cleanser, and hot water. Husband came in just as I was putting on the finishing touches, when, to my despair, the phone rang and I was called away. I had the strainer can on top of the range, melting out some candied honey. The bag, being too long, obstructed its passage through the faucet. I had the oven door open, with small pail catching the honey. While I was at the phone he lifted up strainer cloth, only to start a deluge of hot honey over the stove and floor. To say I was mad would hardly express it, and I vowed and declared then and there I'd leave home if we extracted in the house again. Did we? I'll say we didn't, and were equipped to extract, next year, until it seemed a joy. I am sorry I haven't kept a diary of our experiences, but then every beekeeper knows, "so why worry?" I've learned to handle the bees and find it very interesting, and look forward to the summer and bees with pleasure, although it also means hard work. Montana.

Bees Do Not Chew Their Food

Bees, never having been taught correct table manners, bolt their food whole. The mandibles, formerly assumed by beekeepers to serve as grinding instruments for "chewing" the food of the bee, were found by University of Wisconsin scientists to be in reality more comparable to our knives and forks than to our teeth. They tear off small "bites" of pollen

from a large mass so that they can more easily be mixed with honey and consumed.

The whole process of digestion was made visible by feeding the bees pollen grains and honey stained different colors with harmless dyes. The two scientists, Warren Whitcomb, Jr., and H. F. Wilson, of the Agricultural Experiment Station of Wisconsin University, then followed in detail every step of the interesting process.

Pollen and honey are sucked together into the "honey stomach," which is like the crop of a chicken except that it serves only as a reservoir and does not aid in the process of digestion. From there the grains are strained out into the ventriculus by a remarkable organ called the proventriculus (stomach mouth), or "honey stopper." The observers, with the aid of their optical instruments, could plainly see the pollen collecting near the honey stopper and then could watch the lips of this organ separate while they pushed forward into the honey stomach and closed over the pollen. Very little, if any, of the blue-stained honey was taken with the pollen.

Immediately when it reaches the ventriculus the pollen is surrounded by what is described as a structureless membrane and digestion at once begins. The pollen mass, with the surrounding membrane, then passes rapidly through the alimentary canal, reaching the hind intestine within two and one-half hours after it was eaten by the bee. By this time the pollen grains are nearly all empty, but the walls are still uncrushed. In some strange manner the bee is able to absorb the nourishment through the walls of the pollen grain without ever at any time masticating the grain.

Pacific International Exhibit

The annual exhibit of honey at the Pacific International Livestock Exposition will be held in Portland, Oregon, on October 26 to November 2, inclusive, this year.

Beekeepers of the Pacific Northwest especially are earnestly urged to send their exhibits of honey to this exposition, as it is an event of more or less national importance.

Premium list and full particulars may be secured by writing to S. D. Williams, 5125 Eighty-second Street, Portland, Oregon.

Superior Italian Queens

Guaranteed as Good as Money Can Buy

Any Number, 50 Cents Each

THE STOVER APIARIES

Telegraph Station, Mayhew, Miss. TIBBEE STATION, MISS.

W. R. PERRY'S 1929 LOW PRICES ON QUALITY

HONEY MARKETING EQUIPMENT

We have one of the most complete stocks of honey containers ready for the beekeeper in the middle west. Omaha is situated so that we can give you prompt service and at the lowest transportation cost.

FRICTION TOP PAILS AND CANS

Each year our business in friction top containers is much larger than the year previous. We picked out the quality products and have stuck with them. Again, we offer American Can Company's pails and cans. 'Canco' sets the standard and their cans are best. Friction top pails and cans are packed in dust proof cartons. This assures you they will reach you in clean and perfect condition at the lowest transportation cost. If you want quality pails at the lowest cost send us your order.

		Per Carton	Weight
2½-lb. cans	100 in dust-proof carton	$4.00	31 lbs.
5-lb. pails	50 in dust-proof carton	3.15	28 lbs.
5-lb. pails	12 in re-shipping case	1.00	10 lbs.
10-lb. pails	50 in dust-proof carton	4.65	46 lbs.
10-lb. pails	6 in re-shipping case	.75	7 lbs.

FIVE GALLON (60 lb.) CANS

'Canco' cans. This year with the 2¼" opening, which are easier to fill and empty. These cans are made from 107 lb. tin plate throughout, all seams are soldered. They are the best square cans on the market. Special prices on quantity orders. Strong wood case with cleated ends.

	1 to 9 Cases	10 to 49 Cases	50 Cases or More
1 60-lb. can in wooden case	$0.70	$0.65	$0.60
2 60-lb. cans in wooden case	1.10	1.00	.98

60-lb. cans in bulk, crated in lots of 20 or more cans, 36c each.

TALL CLEAR GLASS JARS OR DIAMOND "I" HONEY JARS

Special tall, white, clear honey jars

24 14-ounce honey jars in re-shipping cases	Per Case,	$0.98
24 8-ounce honey jars in re-shipping cases	Per Case,	.75

DIAMOND "I" HONEY JARS

24 16-ounce honey jars in re-shipping case	Per Case,	$1.10
22 32-ounce honey jars in re-shipping case	Per Case,	.80

OUR GUARANTEE Every container that we sell is guaranteed to give complete satisfaction and to be perfect in every respect.

Carload stocks available at all times during the selling season.

Prices in this list subject to change without notice.

W. R. PERRY CO., 414-416 South 11th Street, Omaha, Nebr.

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A GOOD CROP NEEDS GOOD

CONTAINERS

We have them for you. Cans and Pails. Glass Jars. Wood and Corrugated Comb Honey Cases. Cartons for Comb Honey.

Bee supplies for any need. Ask for container price list.

A. I. ROOT CO., OF CHICAGO

224 W. Huron Street, CHICAGO, ILL.

QUEENS — YANCEY HUSTLERS
BEAUTIFUL THREE-BAND ITALIANS—RECORD HONEY-MAKERS
Untested, 75c each; $8.00 per dozen; $50.00 per hundred
Tested, $1.25 each; $12.00 per dozen
Only one grade shipped—Select. Every queen guaranteed to please you. Reduced prices on package bees
CANEY VALLEY APIARIES, Bay City, Texas
Yancey Bros., Owners

TIN CANS AND PAILS — Best Quality on the Market — July 1st, 1929
In Strong Dust-Proof Cartons—Pails with Sure-On Bails

	Shipment from Grand Rapids			Shipment from Chicago		
	Per 100	Per 500	Per 1000	Per 100	Per 500	Per 1000
2½ pound cans 100 in carton	$3.75	$17.75	$34.00	$3.25	$15.75	$30.80
5 pound pails 50 in carton	$6.50	$31.35	$60.00	$5.75	$27.50	$53.75
10 pound pails 50 in carton	$9.50	$46.00	$88.25	$8.00	$39.25	$76.75

	From Grand Rapids		From Chicago or Detroit		
	One box	Ten boxes	Ten boxes	50 boxes	100 boxes
2½ pound cans 24 in wood box	$1.15	$10.00	$9.50	$45.00	
5 pound pails 12 in wood box	$1.10	$10.50	$9.00	$44.00	
10 pound pails 6 in wood box	$ .90	$ 8.00	$7.00	$32.50	
60 pound cans 2 in wood box	$1.10	$10.00	$9.00	$43.50	$85.00
50 bulk crate	Per crate	$17.50	Per crate	$15.00	

PRICES ON CLEAR GLASS JARS
Panel or plain, in cartons.

	Shipment from Grand Rapids, Mich.			
	1 carton	10 cartons	25 cartons	50 cartons
½ pound 2 doz. in pkg.	$1.00	$ 9.00	$21.25	$40.00
1 pound 2 doz. in pkg.	1.25	11.50	26.25	50.00
2 pounds 1 doz. in pkg.	.85	7.50	18.75	37.50

Shipments can be made direct from factory in Northern Indiana in quantity lots, if preferred

A. G. WOODMAN CO., Grand Rapids, Mich.

Beekeepers Take Notice

For thirty years we have specialized in the manufacture of **Sections** from the whitest selected Wisconsin basswood

We also manufacture hives, supers, frames and shipping cases

Write for our free illustrated catalog

Marshfield Manufacturing Company
Marshfield, Wisconsin

Mention the American Bee Journal When Writing Advertisers

The Same Old Story

By J. B. Dillon

The Rocky Mountain News, of Denver, held its annual cooking school in the municipal auditorium during the week of March 25-30, and the expert cook mentioned all the brands of the various condiments, flours, etc., that she was using to make the many delectables that were handed out to "taste this and that."

Was honey among the lot?

It was not, because it would give sugar a black eye; and while we have no quarrel with anything that was said and done, we can in truth say that what transpired only adds force to what we have written on previous occasions, and that is: Honey producers must hold cooking schools of their own to demonstrate just what a wonderful delicacy honey is, and the many uses to which it is suited.

There is an old saying that the folks that do not advertise may know what they have for sale, but nobody else does, and that the fellow who waited for business to come in got tired of waiting and quit.

There is nothing "just like honey" on the market, and there is nothing as good to lots of folks. Therefore, with a little "push," we can add many more to the long list of those who use honey for many purposes.

A few years ago there was a certain tooth cleanser and a certain household scouring powder on the market, advertised frequently. Every home had one or both. They quit advertising and today were I to mention the brands some of the younger folks would say:

"Why, I never heard of either!"

William Wrigley, Jr., of chewing gum fame, said, when asked why he continued to advertise:

"Advertising is the locomotive that pulls the train. Stop the locomotive and the train stops."

It's up to us. The bees do their part.

Honeybees Capture Thomasville Store

This is the title of a clipping sent us by the Bray News Service, Spartanburg, South Carolina, from a local paper. It tells of the dilemma of Druggist Charles R. Thomas, of Thomasville, North Carolina, when a swarm of honeybees poured in the front door of his drug store. It was a signal for everyone inside to vacate.

It happened that Mr. Thomas was well acquainted with bees, so, after giving them time to make a little investigation of things, he began quietly to load squirtguns with insect-destroying liquid. Needless to say, it was not long before the dead lay in rows and the outbreak was ended.

Bray.